The OIL WEEKLY

10¢ A COPY

Exclusively Devoted To The Production and Transportation of Oil and Gas

May 25, 1928 **Volume 49. No. 10**

-an obligation to the oil industry

Nearly two decades ago, the Hughes Tool Company dedicated its efforts toward designing and manufacturing a specialized line of products for the oil industry, the performance of which would broaden the scope and economies of the rotary method of drilling.

Every Hughes Tool was produced to meet a real need in the industry. The best of material and workmanship, combined with correctness of design, entered into their production.

Today, Hughes products are known and preferred throughout the rotary fields of the world for their dependable, safe, fast and economical performance. An obligation to an industry has been realized—and MET.

better than a written guarantee for performance

HUGHES TOOLS

Sold by Supply Stores Everywhere

HUGHES TOOL COMPANY

Service Plants:
Los Angeles, Calif.
Oklahoma City, Okla.

Main Office and Plant:
HOUSTON, TEXAS

Export Office:
Woolworth Bldg.,
New York City

The Acme Wire Line Knife

(Patented)

Generally recognized as the best wire line knife in the oil country.

The wire lines used in the oil fields today are of very hard steel. Being twisted around a manila cord, they present a difficult job of cutting. Some knives are made to cut by driving down. They are more or less impractical, as it is next to impossible to keep the sand line from wrapping around the cable in the hole, which prevents the weight from falling with the necessary force to cut the cable.

To avoid this trouble, Acme built a knife that would cut *by being forced up*. Acme put two cutters on opposite sides of the wire, so that each cutter is called upon to cut only a portion of it. The cutters are made with three cutting blades, so spaced that each cutting edge engages a separate strand of the wire and has *only one strand to cut*. The body of the knife is extra heavy and substantial. Cutters are made of special tool steel, oil hardened, and will bite through the line under the worst conditions, insuring a clean cut, close to the rope socket.

This outfit can be used on sand line or tubing. It is safe and efficient, and as fool proof as can be. There is nothing to get out of order and no weak parts to break and complicate a fishing job. There are only two parts to wear—the cutters—and genuine Acme cutters will cut line after line without renewal.

Get this Acme tool from our nearest store, and you will save enough time, trouble and expense, which would have been consumed with old style knives, to more than pay for the Acme Wire Line Knife.

This view of the Acme Wire Line Knife shows how each cutter blade cuts a different strand of line. On any six strand line, each blade has only one strand to cut.

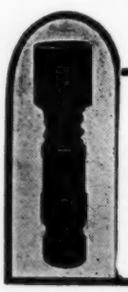
Note the extraordinary simplicity of construction in this knife. Two cutters with six blades insure a quick, clean job without the long, hard jarring usually necessary when a less efficiently designed cutter is used.

By removing the cutters from the knife it may also be used as a bumper. Using the knife as a bumper, it is often possible to loosen stuck tools or locked jars, avoiding the necessity of cutting the line.

The complete Acme Wire Line Cutting Outfit consists of the knife, rope socket, jars, sinker and two tool wrenches. It is popular and in wide use through American oil fields and all foreign fields.

ACME FISHING TOOL CO.

Parkersburg, West Virginia.



Export Office: 136 Liberty St., New York City, N.Y.

Warehouses and Distributors:

Acme Fishing Tool Company—Parkersburg, W. Va.
Acme Fishing Tool Company—Omulgee, Okla.
B. & A. Specialty Company—Tulsa, Okla.
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Acme Rental Tool Service Company—Graham, Tex.
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Acme Tool Co.—Cross Plains, Tex.
Acme Tool Co.—Fry, Texas.
Acme Tool Co.—McCamey, Texas.
Midland Iron Works—Billings, Montana.
Great Northern Tool & Supply Co—Kevin, Montana.
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Great Northern Tool & Supply Co.—Cody, Wyoming
Elms Brothers & Company—Waynesburg, Penna.
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Acme Tool Co.—Pyote, Texas

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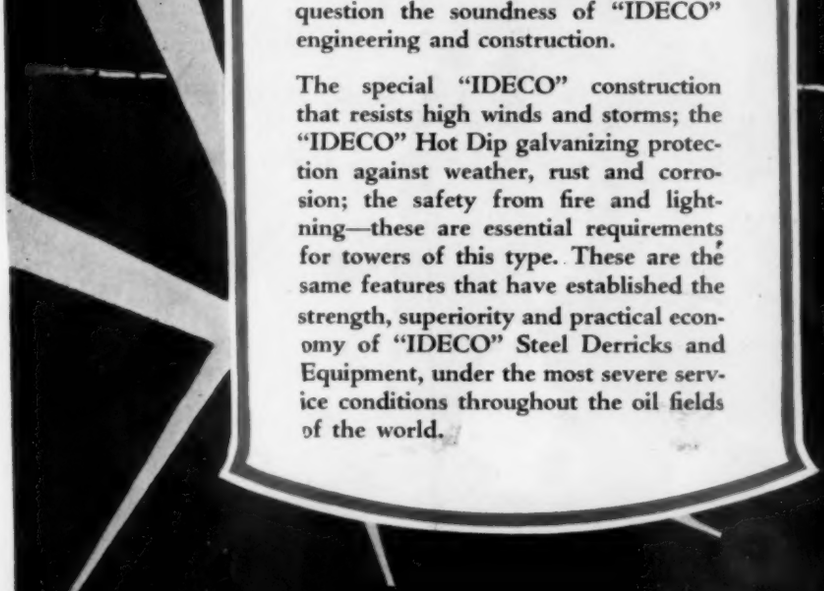
GASO PUMPS
for every oil industry need

Say you saw it in The OIL WEEKLY

U·S·Air Mail Pilots are Beacon Towers built

THE Government's selection of "IDECO" (galvanized) Structural Steel Towers, whose beacons nightly light the cross-country course of the U. S. Mail Service, demonstrates beyond question the soundness of "IDECO" engineering and construction.

The special "IDECO" construction that resists high winds and storms; the "IDECO" Hot Dip galvanizing protection against weather, rust and corrosion; the safety from fire and lightning—these are essential requirements for towers of this type. These are the same features that have established the strength, superiority and practical economy of "IDECO" Steel Derricks and Equipment, under the most severe service conditions throughout the oil fields of the world.



THE INTERNATIONAL DERRICK
COLUMBUS, OHIO

California Representative: National Supply Co. of California

INTERNATIONAL STEEL DERRICKS
IDECO
(GALVANIZED)

Say you saw it in The OIL WEEKLY

Guided at Night by "IDECO"

The one big reason why IDECO towers are used on the airway service is their unfailing dependability.

The same dependability of IDECO oil derricks—their strength, their resistance to rust—their ease of erection, but above all their reliability under all drilling conditions is what makes Oil Men swear by IDECO.

IDECO STANDARD STEEL HANGAR

Many oil companies are operating their own flying service. This requires hangars and other airport equipment.

IDECO steel hangars provide large, clear hangar space unobstructed by columns. They are strong, attractive, weather tight, fire and rust proof, combining long life with low initial cost and economical erection. They may be altered, extended, easily dismantled and moved to other locations to meet future requirements.

Send for Literature

& EQUIPMENT CO.
TORRANCE, CAL.

Export Representation: 74 Trinity Place, New York City - Columbus, Ohio - Los Angeles - San Francisco.

INTERNATIONAL
STANDARD IDECO BUILDINGS
(GALVANIZED)

17

IDEAL

DOUBLE REDUCTION PUMPING GEAR

Type "B"

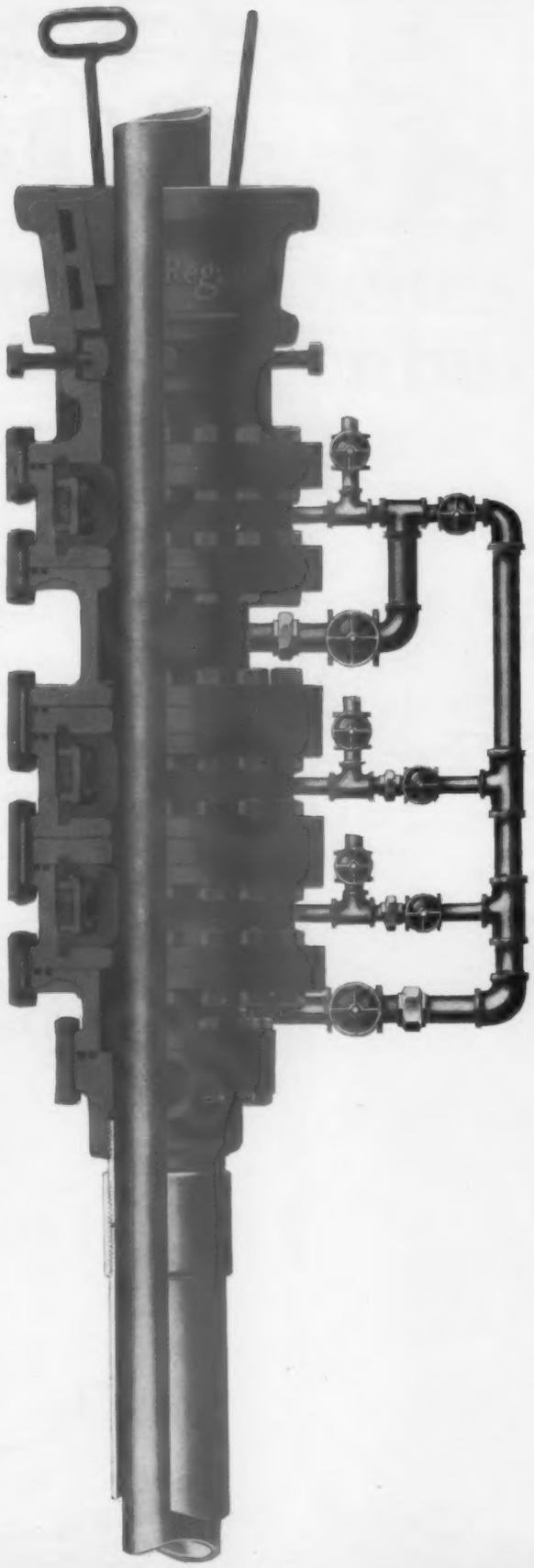
DESCRIPTIVE BULLETIN No.— 7NA ON REQUEST

THE NATIONAL SUPPLY COMPANIES

Say you saw it in The OIL WEEKLY

For Controlling Poisonous Gas

Regan T & R Gas Controller



—used in connection with Miller & Fisher drilling system.

For running or pulling casing under pressure, to prevent escape of poisonous gas. Withstands all high pressures encountered.

If gas pressure occurs when running in casing, the pressure is transmitted from the well through the manifold to the back of the different rubber cylinders, causing the rubber cylinders to seal around the casing. When running in casing the pressure is released from top rubber cylinder so that the coupling will readily pass, after which the pressure is again applied by manipulation of the valves. This operation is reversed when pulling out. The lower rubber cylinder is not in use when running in casing but is for emergency service only.

Patented

Regan
Forge & Engineering Co.
San Pedro California

Dallas, Texas
1504 Magnolia Bldg.

Oklahoma City, Okla.
531 W. Main St.

Odessa, Texas

Pampa, Texas

New York City
75 West St.
Wm. Braat, Manager.

Maracaibo, Venezuela
Wm. Adams, c/o Amer. Consul.

You Can't Always Avoid Leaks—

But you can reduce leaks to the irreducible minimum by installing Darling Gate Valves. They have proven their worth not only as the tightest seating valves, but are equally as noted for their ease of operation, long wear and freedom from repairs.

In the Darling Gate Valve all working parts are plain and free from pockets where scale and sediment might collect to interfere with tight closing or full opening. The wedges, released by the first turn of the stem, cannot get out of position to interfere with the rise of the discs.

Not only do the discs rotate, providing self-cleansing faces, but they cannot bind and jam even when the valve is fully open.

Finally, old timers who have used Darlings for years in preference to all others will tell you that when Darlings do need attention, which is seldom, they are the most easily repaired valve in the field.

Darling Valve & Mfg. Company

WILLIAMSPORT, PA.

New York Chicago Houston Oklahoma City

Mid-Continent Distributors

Frick-Reid Supply Co. Atlas Supply Co.
International Supply Co.
Petroleum Supply Co.

California Distributor

Petroleum Equipment Company
Los Angeles

WILSON TONGS GUARANTEE *SAFETY !!*

The One latch that *never* unlatches accidentally

The Wilson Tong will never fly off the pipe or casing if the cat-line should break, because the spring-latch on a Wilson Tong will not unlatch. The latch is at the end of the jaws, in front of the tong, where the pull is squarely against the tee-head—so no strain occurs. The 4 jaws are actuated by the lever which has a double compensating fulcrum, equalizing the distribution of pull around the casing.

Only Wilson Tongs can embody *all* essentials of safety, speed, strength and convenience, because Wilson invented and patented the features which render these necessary essentials possible.

Carried in stock by your Supply Companies

Wilson Oil Tools Corp.
DISTRIBUTORS FOR
Wilson & Willard Mfg. Co.
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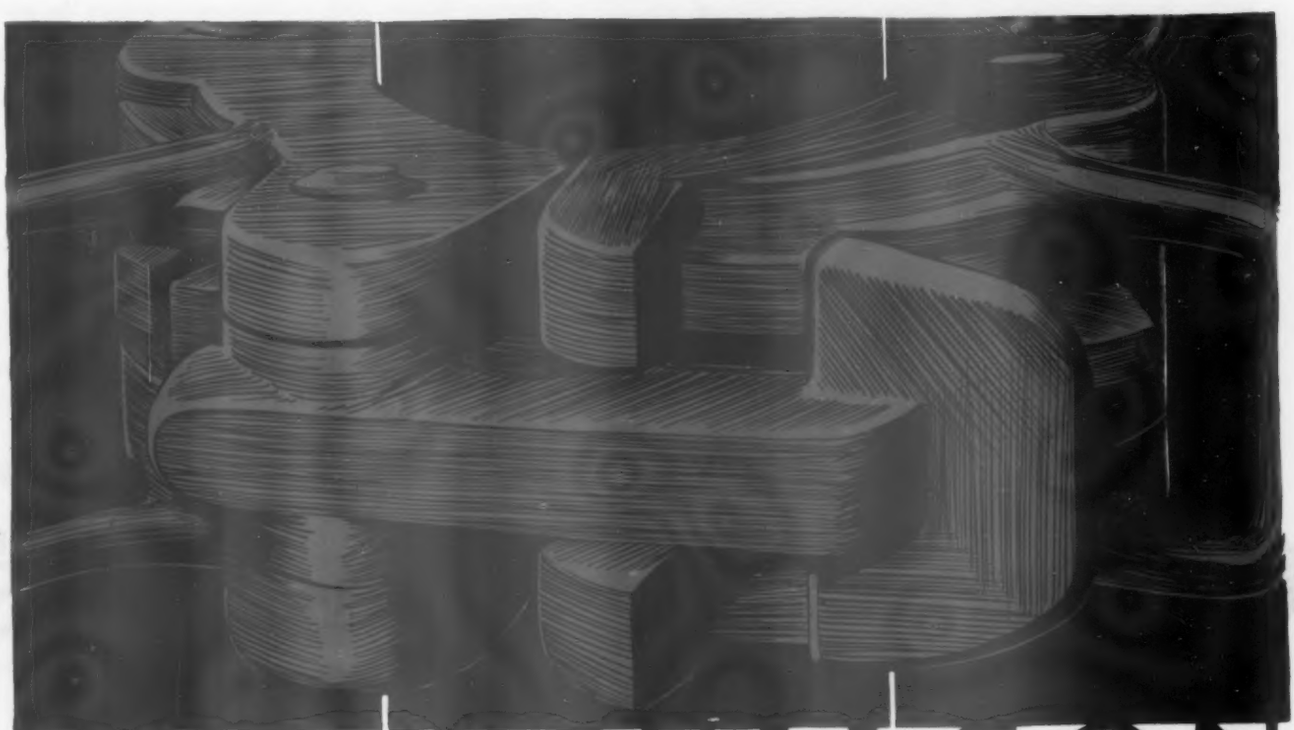
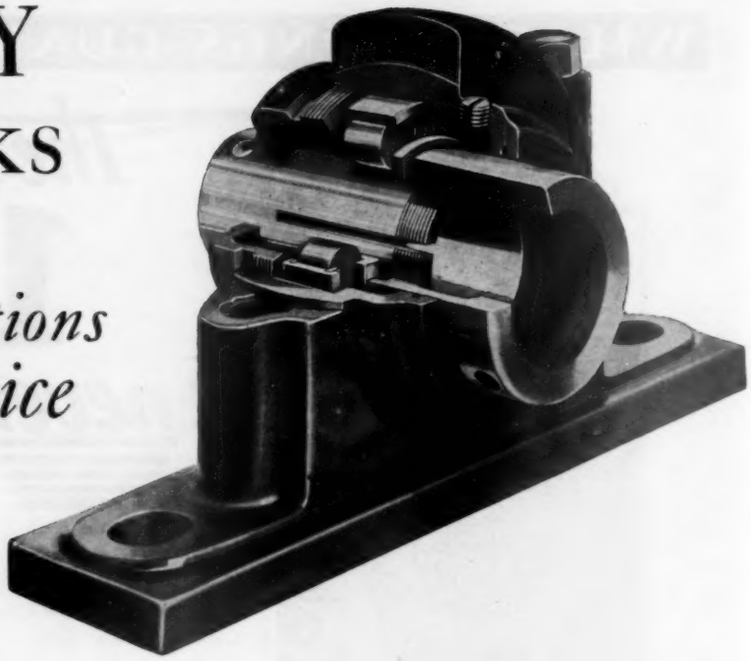


IT'S A WILSON

ROLLWAY Pillow Blocks

are overcoming

The Severest Conditions of Bearing Service



Rollway Roller Bearing Pillow Blocks solve the problem on jobs where the loads are too heavy and the service too severe for ball bearings. Rollway Pillow Blocks are built for shaft sizes up to 10 inches in diameter.

Upper right shows Rollway Pillow Block with Adapter Bearings to fit Standard Commercial Shafting where machining the shaft is objectionable.

Lower: Rollway Bearing Pillow Block with standard bearings for application where shaft can be turned to fit the bearing.

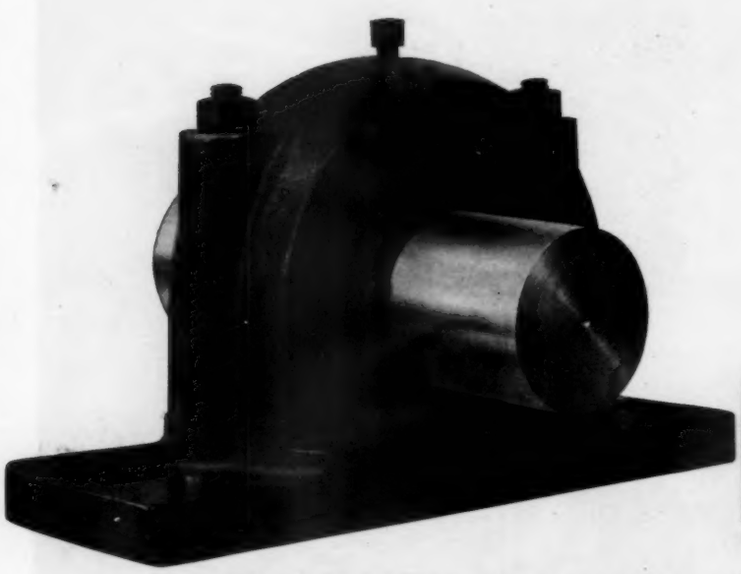
Rollway Roller Bearing Pillow Blocks are the result of nearly twenty years' experience in the manufacture of heavy duty roller bearings and anti-friction bearing pillow blocks.

It takes a rugged, dirt-proof Pillow Block to stay on the job under severe conditions—and that's just what Rollway is. One advantage of the Rollway self-aligning housing is that it permits much more efficient sealing against dirt than is possible with a fixed housing. The long adapter of the Rollway Self-Aligning Pillow Block permits adjustment of the bearing on the shaft and the tightening of the adapter without opening the bearing housing.

Rollers and races are made of chrome carbon alloy steel, heat-treated, giving uniform hardness and dependable service.

Rollway Pillow Blocks will save money because they make a bearing breakdown a rare event, and keep production at the peak.

Two interesting bulletins, No. 53 and No. 55, will tell you the whole story. They are yours for the asking.



ROLLWAY
CYLINDRICAL ROLLER BEARINGS

ROLLWAY BEARING CO., Inc.

SYRACUSE . . . . . NEW YORK

Say you saw it in The OIL WEEKLY

Make Your Next Drilling Valve
A Kerosene Tested Valve

Think of the guaranteed protection of a valve that is subjected to a continuous maximum pressure test for 24 hours with Kerosene as the testing fluid before it is sent to the oil fields and you think of Kerotest.

The penetrating qualities of Kerosene will seek out and reveal the most minute flaw in the steel and when used under this high pressure forms the most severe test ever attempted by a valve manufacturer.

Kerotest is the only valve so tested —the only valve whose strength is proved beyond a doubt before being used on an oil well.

KEROTEST MANUFACTURING COMPANY
Pittsburgh **Penna.**

Carried in Stock and Sold by
Grinnell Company of the Pacific
Los Angeles San Francisco
Purvell-Wilder Hardware Co.
Houston Beaumont
Shreveport Fort Worth

Oil Well Supply Company
Branch Stores in all Oil Fields

Export Distributors:
Oil Well Supply Company
Pittsburgh New York
Tampico London

Manufacturers of Drilling Valves, Refinery Valves, Flow Line Valves and Heavy Duty Fittings for oil fields.

DRILLING VALVES REFINERY VALVES

KERO TEST

REGISTERED U. S. PAT. OFF.

FLOW LINE VALVES HEAVY DUTY FITTINGS

30 Years of Progress

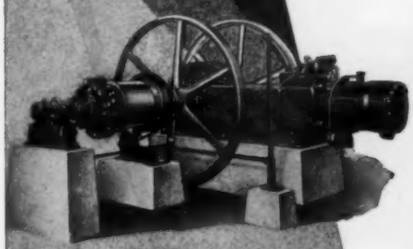
and still leading in specialized power equipment for the Oil Industry

FOR 30 years Bessemer has been specializing in power equipment for the Oil Industry—constantly improving and pioneering to meet the ever-changing operating conditions throughout the world's oil fields.

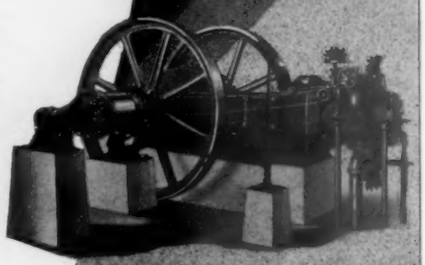
Old types of equipment have been improved to the nearest attainable point to mechanical perfection; new equipment has been developed and perfected to meet new needs; and each product in the Bessemer line has earned its position of leadership solely on its merits in competitive service.

After three decades of unceasing progress, Bessemers continue to stand out as by far the greatest value in oil field power equipment—living up to their truthful slogan, "You buy the best when you buy a Bessemer."

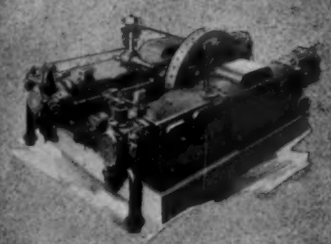
THE BESSEMER GAS ENGINE COMPANY
62 York Street : Grove City, Pa.



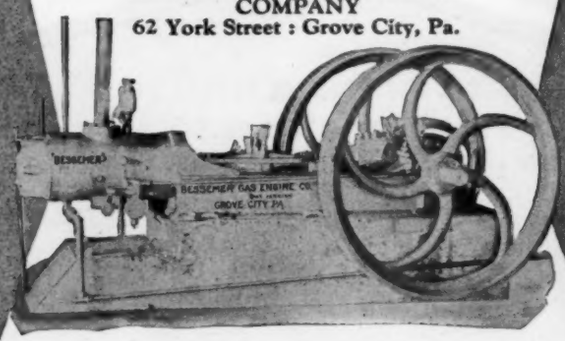
Bessemer Type O. F. Oil Field Engine

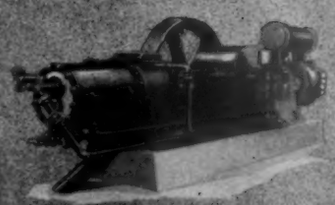


Bessemer Four-Cycle Oil Field Engine



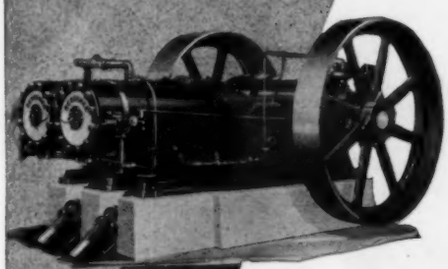
Bessemer Four-Cycle Compressor





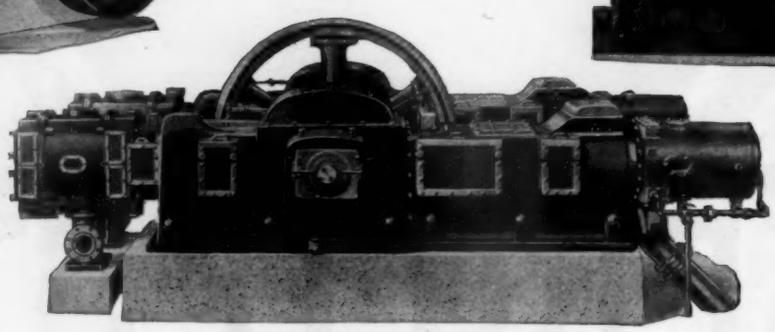
Bessemer Type Ten equipped with Gas Economizer and 8A-2 Cylinder

Thirty years ago the first Bessemer Oil Field Engine, pictured above, entered service in the oil fields of Pennsylvania. Today over a million and a quarter horsepower of Bessemer equipment is in service the world over.



Bessemer Type H. C. Gas Engine

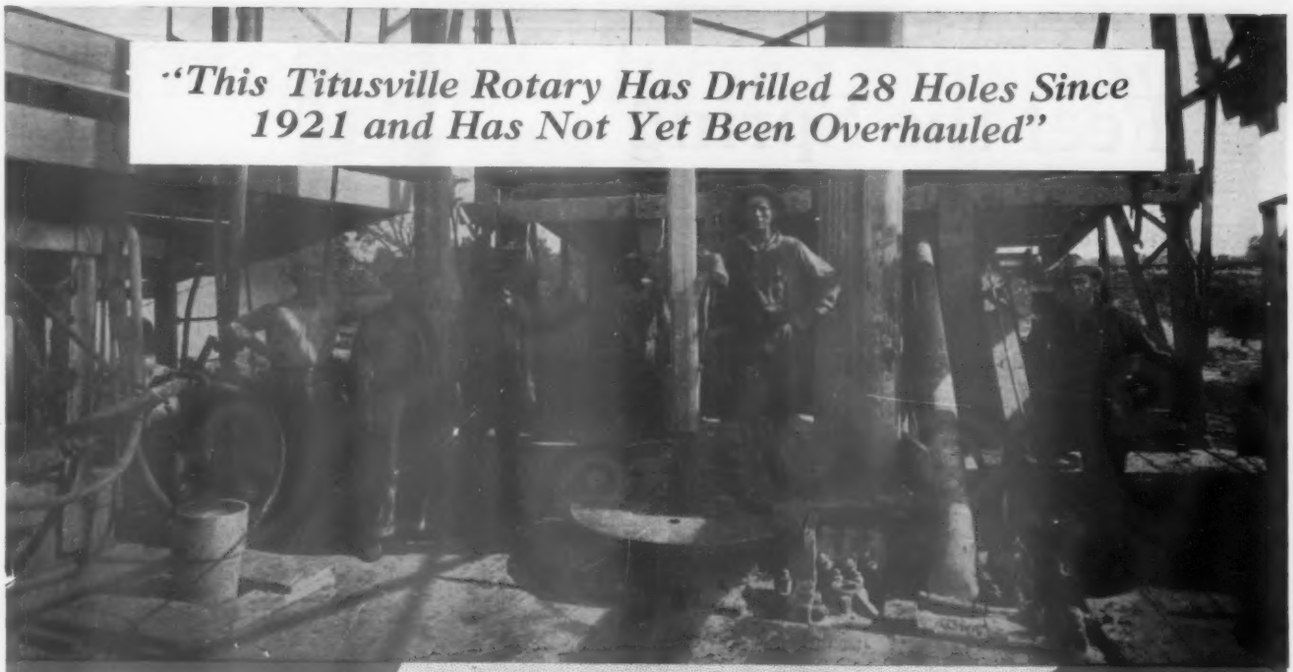
Bessemer 2-Cylinder Diesel Engine



Bessemer Type Ten Compressor—greatest value in the compressor field

BESSEMER

Say you saw it in The OIL WEEKLY



"This Titusville Rotary Has Drilled 28 Holes Since 1921 and Has Not Yet Been Overhauled"

TITUSVILLE ROTARY EQUIPMENT

Just think of it boys, an average of four holes per year for the past seven years and still going strong with the same original bearings.

That's what Harry J. Fast, drilling contractor and his crew are getting from their Titusville Acme Rotary Outfit at Seminole, Oklahoma.

We are as proud of this consistent Acme Rotary performance as the contractor is of his good judgment in specifying this complete Acme rig including turntable, draw works, engine, pumps and boilers shown above.

You, too, can expect the same results, if you specify the time-tested dependability of Tico Acme Rotary Equipment. Your Continental Man will be glad to show you why.

The TITUSVILLE IRON WORKS Co.
TITUSVILLE - PENNA.

Titusville Acme Boilers Single and Twin Steam Drilling Engines Tico Gas Engines Band Wheel and Geared Powers

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72-76 Trinity Court,
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615 Roosevelt Bldg.,
Los Angeles, Calif.

Titusville Acme Rotaries Acme Swivels and Speed Draw Works High Pressure Boilers Crown Blocks Mud Pumps

RUGGED AND ENDURING

Feel the Spring

It's the marvelous spring and snap that B. & B. Drilling Lines give to the tools that makes them make hole so fast.

But it's the unusual quality in the wire used in making these superior lines that makes them make hole cheaper. You'll be glad you tried B. & B. Patentsteel, Extra Strong or Cast Steel Lines.

Write for Catalog 41.

BRODERICK & BASCOM ROPE CO.
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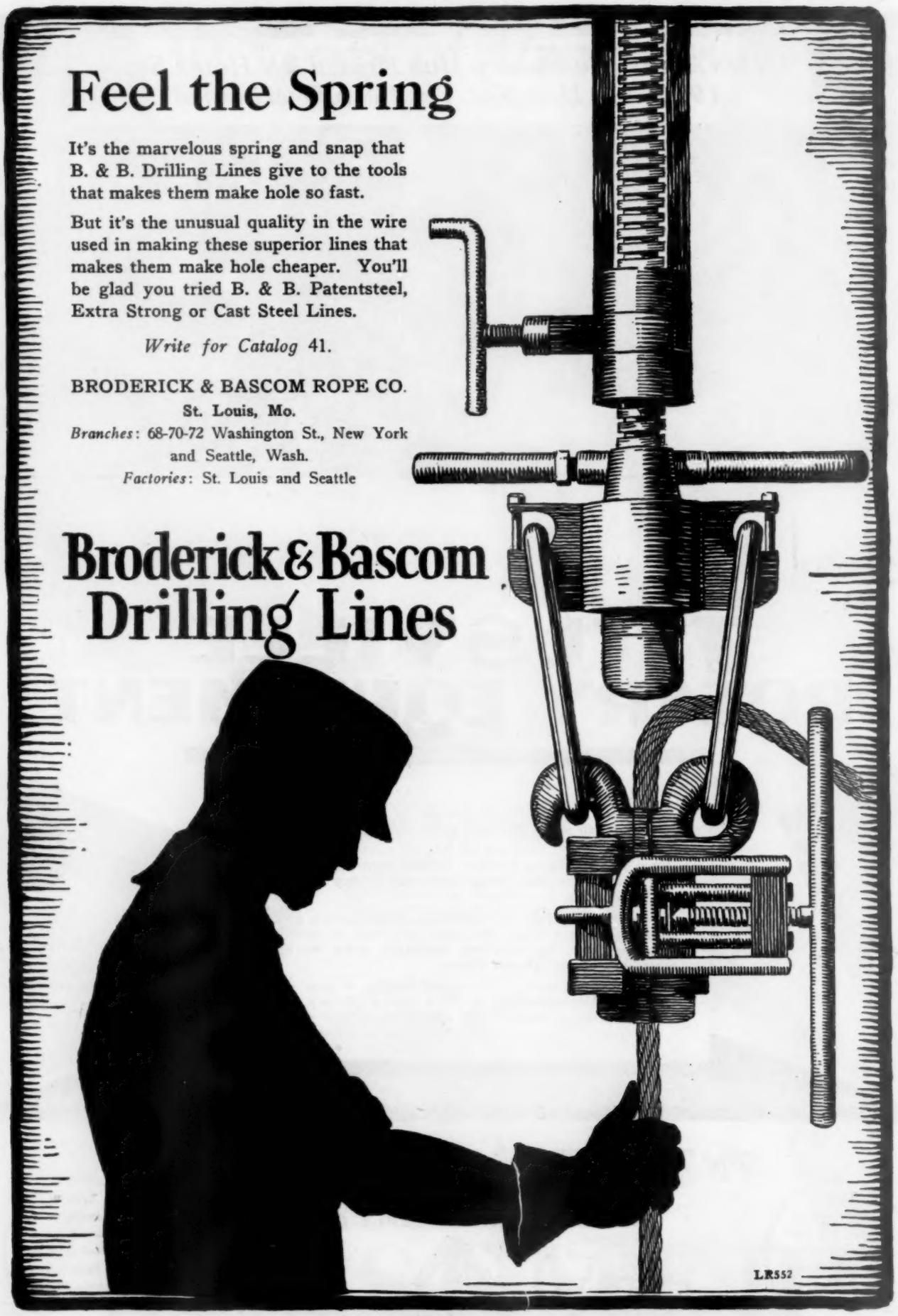
Branches: 68-70-72 Washington St., New York and Seattle, Wash.
Factories: St. Louis and Seattle

Broderick & Bascom Drilling Lines



Say you saw it in The OIL WEEKLY

You may see your Tubing EATEN AWAY

But How About Your Casing?

EVERY corroded length of tubing is a bitter reminder that your casing may be in the same sorrowful condition — unless, of course, you had originally taken the precaution to use wrought iron pipe. But if some inferior material were used, sooner or later you may pay the piper—sooner or later water may trickle through corroded casing walls and cause more trouble. Besides, fishing jobs just thrive on such a state of affairs.

The little extra you pay for wrought iron is quickly counterbalanced by savings in other directions. *Reading* tubing and casing in particular have features that pay dividends on your investment. Reading pipe is the only wrought iron pipe double welded. It is insurance against leaky joints, splits, galled threads and crystallization.

READING IRON COMPANY

Reading, Pennsylvania

Houston *Tulsa* *Fort Worth* *Los Angeles* *San Francisco*

READING PIPE

GENUINE WROUGHT IRON

Say you saw it in The OIL WEEKLY

It *will* stop Breaking *and* Unscrewing of Your Sucker Rods

The NECO B & B Shock Absorber ≈ Rod Swivel

Patented

The Greatest Pumping Invention of the Century is knocking at the door of all who are troubled and penalized by sucker rods breaking and unscrewing — and by excessive wear of rods and tubing.

You now have an opportunity to get rid of this grief permanently. The principle is so simple it is astounding that it has escaped so long. It remained for two practical production experts, long-worried by rod failures, to bring forth a product that simplifies rod pumping and lowers its cost to an extent that brings joy to the hearts of all who use this new NECO device. Order from your nearest supply base.

NORTHRUP EQUIPMENT COMPANY

PARKERSBURG, W. VA.

NORTHRUP EQUIPMENT COMPANY,
Parkersburg, W. Va.

Gentlemen:

Send me information on "The Greatest Pumping Invention of the Century."

Name .....

Company .....

Address .....

Say you saw it in The OIL WEEKLY

RUF-NEK

The Pumping Unit for Oil Wells

A LINK-BELT PRODUCT

OUR experience in the designing and building of machinery—over a period of fifty years—has entered into the construction of the Ruf-Nek. Its design incorporates many new and unusual features, and Link-Belt Herringbone Gears (Sykes tooth form) are used throughout.

Send for illustrated Book No. 780; also list of installations.

We also make Link-Belt "SS" Rotary Drilling Chain; Link-Belt "RC" Roller Chain and Link-Belt Silent Chain. Send for Catalogs.

2180

LINK-BELT COMPANY

PHILADELPHIA, 2045 W. Hunting Park Ave.
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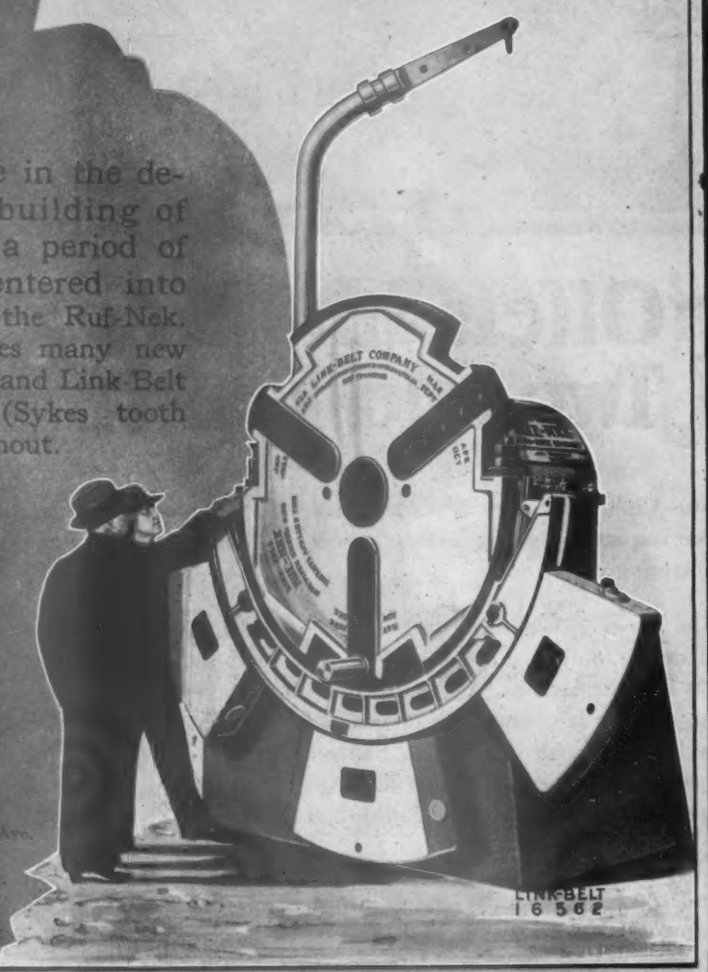
DISTRIBUTORS

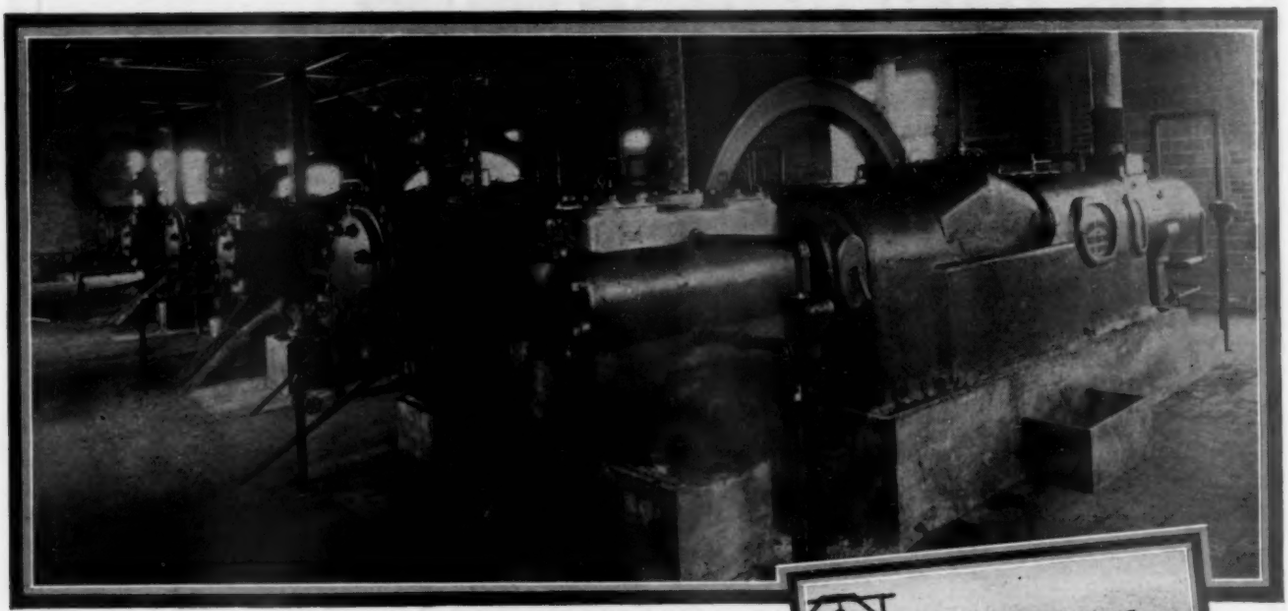
The Parkersburg Rig and Reel Co.
Texas Iron Works Sales Corporation.



LINK-BELT

RUF-NEK PUMPING UNIT

CLARK "SUPER 2"



~Offers Impressive Two-fold Economy

The CLARK "Super 2" Compressor effects important savings in two respects by giving *minimum fuel cost*, together with *minimum operating cost.*

The Super 2, with the Clark Fuel Injector and other refinements of design, obtains a better mixing of gas and air, eliminates loss of gas into the exhaust, and insures thorough scavenging of cylinders. As a result it operates on one-third less gas than the ordinary 2-cycle. Although it gives the fuel economy of a 4-cycle engine, it has the simplicity of 2-cycle design, which means a smaller operating force required for attention and adjustment.

The CLARK Super 2 Compressor is available in 90 H. P. Single and 180 H. P. Twin. Get full information from Clark Bros. Company, Olean, N. Y. Branch and Warehouse: 125 W. First St., Tulsa. Warehouses at McCamey and Sweetwater, Texas, and Artesia, N. M. California: Smith, Booth, Usher Company, 228 S. Central Ave., Los Angeles, and 50 Fremont St., San Francisco.

Upper illustration shows three 180 H. P. Super 2 Compressors at the Chanute, Kansas, plant of the Midwest Gas Company. Center photo shows installation of the compressors and lower view of the exterior of plant.

Clark Bros. Co. OLEAN, N.Y.

CLARK

Say you saw it in The OIL WEEKLY

ALL RIGS EQUIPPED

with

UNITED BRADFORD

RIG IRONS

and

STEEL EQUIPMENT

Stocks Maintained at These Points:

KANSAS
- Madison
- Eureka
- Winfield
- Keighley
- Hutchinson
- Lost Springs

OKLAHOMA
- Covington
- Tulsa
- Okmulgee
- Seminole
- Sasakwa

ARKANSAS
- El Dorado
- Smackover

TEXAS
- Pampa
- Panhandle
- Borger
- Shamrock
- Trent
- McCamey
- Pyote
- Odessa
- Santa Rita

"UNITED-BRADFORD" Equipment is finding increasing favor with the larger operators. The illustration shows a lease of the Minnehoma Oil & Gas Company at Bowlegs, Oklahoma, on which "United" Rig Irons and Steel Equipment is used exclusively.

A FRANK REQUEST

We honestly believe "United-Bradford" Equipment has no superior. We feel, too, that "United" Service is the kind that will meet every expectation. We want a chance to show you what others think of us. We want an opportunity to convince you that "United" can serve you advantageously. Let us send you complete information. Write today.

ADDRESS

UNITED IRON WORKS, Inc.

KANSAS CITY, MO.

Manufacturers of RIG IRONS and STEEL EQUIPMENT STEEL TANKS DRILLING MACHINES SWAB BARRELS

Sales Office
TULSA, OKLA.
114 N. Rosedale

"UNITED" IRON WORKS INC. FOR SERVICE

Sales Office
DALLAS, TEXAS,
Magnolia Bldg.

Figure gasoline at $3.36 per bbl.

5.87 / 3.45 / 2.42 bbls. saved per day
2.42 x $3.36 = $8.15 saved per day

$138 Investment Saves $2974.75 per Year —yielding 2155% Annually

HERE'S *performance* that is *typical* of the saving from installing an 8″ Oceco Vent Valve (costing $138). A large well known oil company writes us as follows:

"The vent valve was installed on a 55,000 barrel tank containing about 29 ft. of 60-62 A. P. I. gravity gasoline, and losses were measured by gauge. Losses were also gauged on a 55,000 barrel tank filled with same kind of stock but equipped with normal breathing mechanism of 8″ vent line and tee with two screens. The tank with Oceco Valve installation had a loss of 3.45 barrels per day, whereas the tank not so equipped had a loss of 5.87 barrels per day."

The "55's" were of usual oil field construction without special roofs or other equipment, valve being set for ½ oz. pressure and ½ oz. vacuum.

$8.15 x 365 = $2974.75 saving per yr.

True, most crude oils do not evaporate as *fast* as this but what they lose is *gasoline.* Even a very little evaporation may bring your crude to a lower priced gravity. It's this waste which you don't see that runs up inventory losses.

Write or wire us today for quotations and full particulars. Put some Ocecos to work for you. You can't make another investment in this industry where so small an outlay yields so sure and large returns.

THE OIL CONSERVATION ENGINEERING COMPANY
877 Addison Road, Cleveland, Ohio

Engineering and Sales Service:

25 Broadway, New York
Box 552, Beaumont, Texas
417 So. Boulder St., Tulsa, Okla.
Neilan, Schumacher & Co., Los Angeles, Cal.

"OCECO"

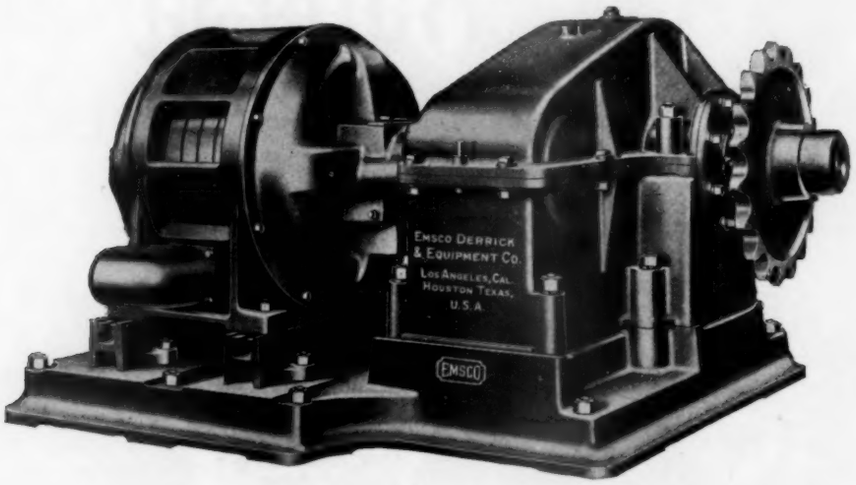
EQUIPMENT WITH A SERVICE RECORD

Say you saw it in The OIL WEEKLY

Take it Out of the Oil Field and
You are
MINUS – that Greater Biting Surface
MINUS – Links that Won't Spread
MINUS – that Shallow Recess that makes for Easier tong Release
MINUS – that Exceptionally Wide handle bearing that gives Greater Strength and Longer Life
BILLINGS
CHAIN PIPE TONGS
FLAT OR CABLE LINK
Let Us Send You Literature
The BILLINGS & SPENCER CO.
HARTFORD, CONN.

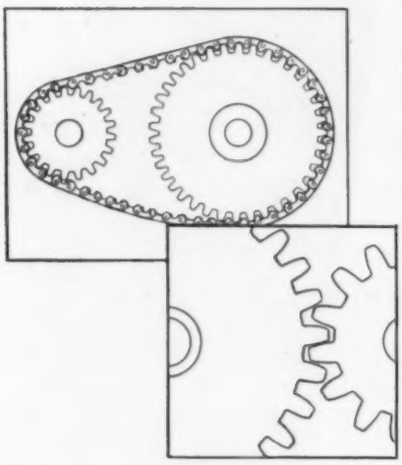
Say you saw it in The OIL WEEKLY

For greater strength, flexibility and higher efficiency . . .



Type "E-11" for heavy drilling. Three other types for pumping service.

EMSCO *Roller-bearing silent chain drive* REDUCTION GEARS



Note how in the chain drive, above, the work is distributed equally among *all the teeth* in play; while in the gear drive below, a *single tooth* at a time does all the work.

SIMPLIFIED construction, with fewer wearing parts, is the basic principle of design and construction which accounts for the outstanding performance of Emsco Reduction Gears in drilling and pumping service. The silent chain drive combines the best features of both gear and belt drives. It is as positive as the gear and as flexible as the belt, and more efficient than either. In actual tests it has proved to be in excess of 98% efficient ... sustained throughout the life of the drive. Approximately 50% of the teeth in both sprockets are constantly in contact with the chain, each tooth absorbing its full individual load. It is silent in operation and absorbs the shocks instead of transmitting them from one shaft to another. Four types, all Timken Roller Bearing equipped.

Descriptive bulletins with detailed specifications on request.

Type "B-11" For Pumping (Engineering Folder No. 32)
Type "C-11" For Pumping (Engineering Folder No. 33)
Type "C-11" For Medium Drilling (Engineering Folder No. 34)
Type "E-11" For Heavy Drilling (Engineering Folder No. 35)

EMSCO
Derrick & Equipment Company
Los Angeles California
Houston Texas
New York Office: 150 Broadway
Factory Branch at Tulsa

EMSCO STEEL EQUIPPED WELLS ARE SAFE

Say you saw it in The OIL WEEKLY

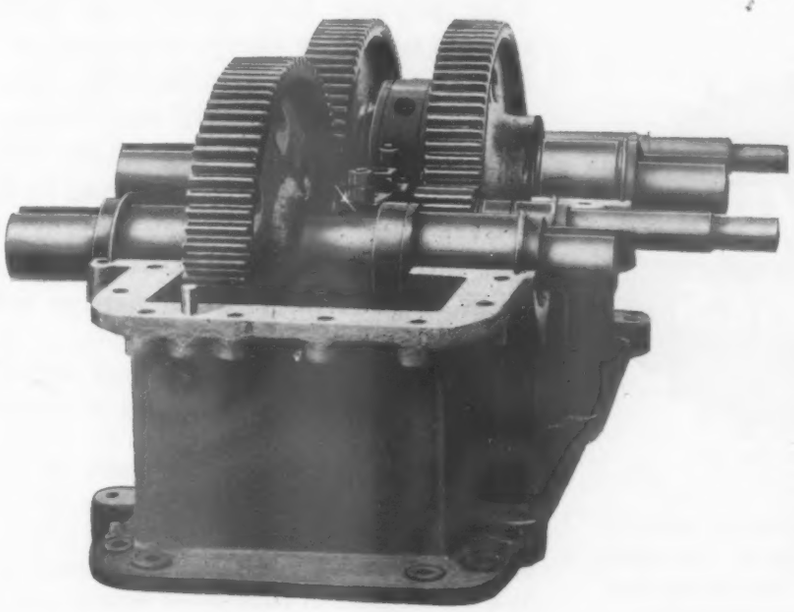
Nuttall Hild Drives Proves Gear Quality

The success of the Hild Differential Drive has been phenomenal and its use has revolutionized rotary oil well drilling.

When the Oil Well Supply Company wanted someone to build a gear unit able to stand the terrific demands of deep rotary drilling, they came to the Nuttall Company. Exceptional manufacturing facilities, plus long experience in gear cutting and reduction unit manufacture has enabled us to build into the Hild Drives the wear resistant qualities so characteristic of Nuttall Pump Gear Units.

The gears in the Hild Drive are treated by the famous BP "Tough-Hard" process—the most successful ever developed for the treatment of gear steel. Hild Drives that have drilled as high as fourteen wells, show practically no wear on the gears—convincing proof of the gear quality.

WRITE FOR OUR BULLETIN NO. 62 IT GIVES MANY OTHER REASONS AS WELL AS OTHER VALUABLE DATA



R. D. NUTTALL CO.
PITTSBURGH, PA.

All Nuttall Products are sold through the Westinghouse Electric & Mfg. Co. district offices. Refer your inquiries to the nearest Westinghouse Office.

Oilwell Supply Co.
Authorized Distributor

Nuttall

Be Careful In The Selection Of Lubricants For Your Motorized Equipment

Passenger cars and trucks of different makes vary considerably in type and design.

Be sure that you understand: (1). The type of lubricating system used, which determines the method of feeding the oil. (2). The type of cooling system used, this factor having more or less effect on the operating temperatures of various parts of the motor.

The proper lubrication of motor equipment means not only the lubrication of the engine cylinders — but the complete lubrication of all of the moving parts of the motor. Much harm can result from the use of too heavy an oil in a pressure system not designed to handle it—also where the "splash" system is used, the oil must not only flow easily, but must atomize readily so as to reach certain bearings which can be lubricated only by a fine mist. Your passenger cars and your trucks are designed to give you many years of service—if they are properly lubricated.

HUMBLE OIL & REFINING CO.
HUMBLE OILS
HOUSTON, TEXAS

Reg. U. S. Pat. Off.

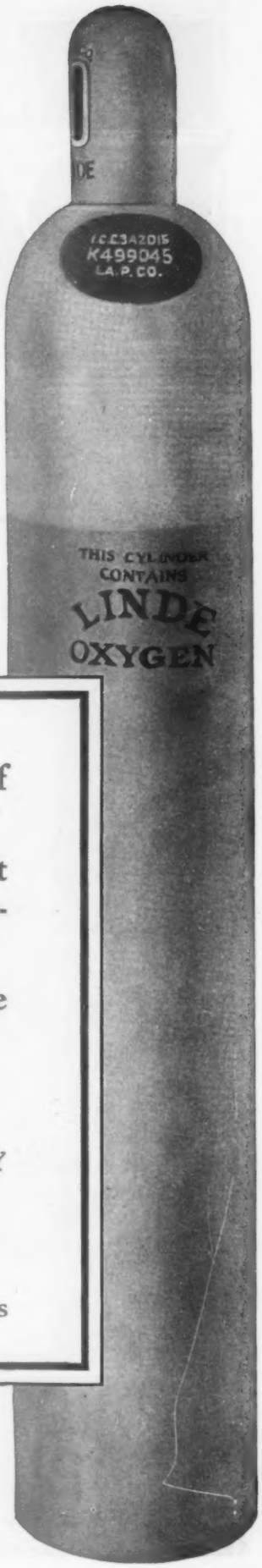
There is a Humble Oil which is specially prepared to meet every bearing need in your plant, your trucks, or in your automobile.

Humble Motor Oils are the result of years of experience in lubricating internal combustion engines. The recommendations of Humble engineers are an added factor of safety. Whether you operate one passenger car and truck, or a whole fleet of motorized equipment, it will pay you to learn more about Humble Oils.

Humble Oil & Refining

Producers - Pipe Lines - Refiners - Marketers

You'll buy LINDE OXYGEN



When you think of oxygen in terms of what it will do . . . . .

When you realize that the cheapest oxygen is that which is *used* most effectively . . . . .

When you know the value of Linde Process Service . . . . .

Then you'll buy Linde Oxygen.

THE LINDE AIR PRODUCTS COMPANY
Unit of Union Carbide and Carbon Corporation
UCC
General Offices: Carbide and Carbon Building
30 East 42d St., New York
48 PLANTS . . . . . 105 WAREHOUSES

ELECTRIC POWER FOR WEST TEXAS

THROUGHOUT 40 West Texas Counties, nearly 2000 miles of high tension lines carry abundant electric power to 102 "centers of distribution." Most of the vast "oil territory" of West Texas lies within this domain—and *many* of the far-seeing Production Managers of progressive oil companies operating in this district are turning to *Electric Power*

—for drilling wells
—for pumping wells
—for pumping pipe lines
—for heating flow tanks
—for operating loading racks and gasoline recovery plants.

In competition with all types of fuel (including waste gas that may be had for the piping) ELECTRIC POWER has proven itself MORE ECONOMICAL. It completely eliminates water problems, corrosion of fuel lines, and FIRE HAZARD—and is ready day or night at the throw of a switch.

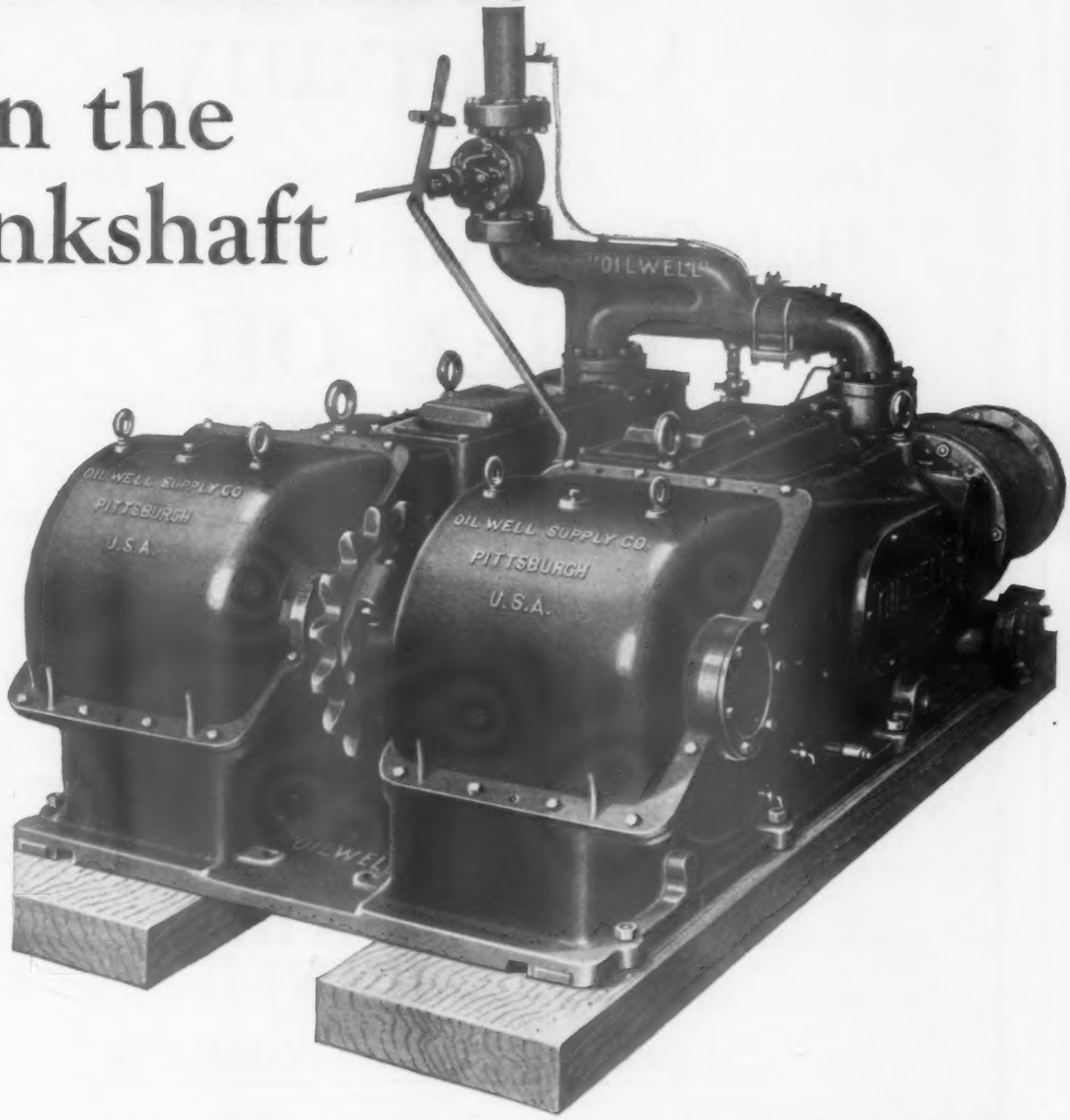
Let OUR Engineers Solve YOUR Power Problem

WEST TEXAS UTILITIES COMPANY
ABILENE, TEXAS

Say you saw it in The OIL WEEKLY

TIMKEN
Tapered
ROLLER BEARINGS

On the Crankshaft



More Timken Bearings are used in the oil fields than all other anti-friction makes combined. Endurance is the reason. The basis of Timken endurance is the exclusive combination of Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS*, and Timken-made electric steel.

A bearing has surely proved itself worthy of highest confidence when it is used for an application like the crankshaft, by a manufacturer like Oil Well Supply Co. It is more than ordinarily significant that Timken Bearings were selected for the right and left crankshaft positions on the new 12″ x 12″ "OILWELL" Oilbath fully enclosed Twin Cylinder Steam Drilling Engine. Yet this is exactly in line with the decided trend to Timken Bearings in all types of oil field equipment.

Timkens are first where endurance is the first requirement. "More than anti-friction," Timkens not only save power and lubricant, but overcome the wear of thrust, shock and weight. Timkens permanently protect alignment. Timkens permit tight seals. Timkens make for simplicity and freedom from attention.

Under the ceaseless impact of steam engine power strokes, or under the brutal thrust load in big swivels, Timken endurance *keeps things going fast.*

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

Say you saw it in The OIL WEEKLY

Magnolia Petroleum Company

Producer *Refiner* *Jobber* *Distributer*

High Grade Petroleum Products

FUEL OIL

LOADING STATIONS AT

BEAUMONT CORSICANA SABINE GALVESTON FT. WORTH
HARBOR ISLAND LULING CORPUS CHRISTI DALLAS
HERMA, ARK. MIRANDO

MANUFACTURER OF

Magnolene
REG. U.S. PAT. OFFICE

THE DEPENDABLE LUBRICANT

"a grade for each condition"

REFINERIES LOCATED AT

Beaumont, Corsicana and Ft. Worth

General Offices: DALLAS, TEXAS

DIVISION SALES OFFICES:

DALLAS HOUSTON FT. WORTH SAN ANTONIO OKLAHOMA CITY LITTLE ROCK
AMARILLO EL PASO

Inquiries Respectfully Solicited

SERVICE

WORD SUPPLIES

- Baldwin Chain
- Dunn Tubing Stops
- Guiberson Tubing Catchers
- Wilson Tongs and Elevators
- Regan Equipment
- Garco Brake Band Lagging
- Wickwire Spencer Wire Lines
- A. H. Neilson Hooks—Elevators
- A. H. Neilson Rod Sockets
- Lion Paw Belting
- Lucey Drilling Equipment
- McClatchie Automatic Catheads
- McClatchie Cement Heads
- Armco Tubing
- Hughes Tool Company Products
- Reed Roller Bit Company Products
- Turbolite Generators
- Hindman Sub-Swivels
- W. K. M. Products

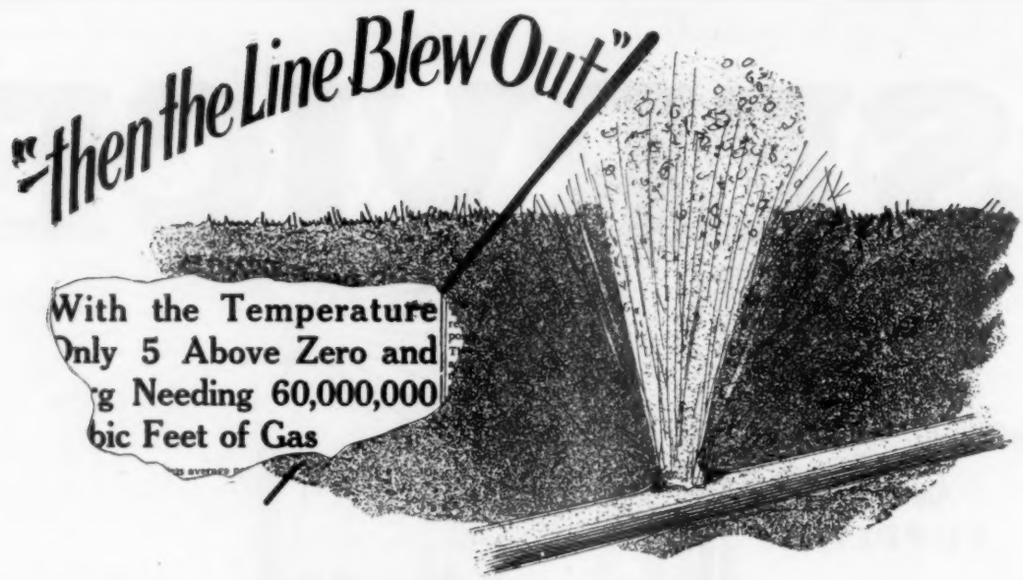
Based on Knowledge

A supply house is primarily a service institution rendering that service efficiently and intelligently, according to their knowledge of the field they serve. Knowledge is, therefore, the gauge with which you can measure the efficiency of your supply house.

The T. T. Word Supply Company is an institution that is able to base service on knowledge. Our personnel and employes have spent years in the field and on derrick floors—have experienced your difficulties and problems. We are able to think in your terms and talk your language.

This knowledge fortifies us with an understanding of oil field work that gives the driller and operator an institution from which he can expect dependable supplies, knowledge sold and serviced.

A glance at the list of supplies opposite, reveals the magnitude of the field we are prepared to serve. Your phone call, wire or letter receives speedy and intelligent attention. Let us know your needs.



Eliminate Welded Pipe
in Gas, Oil and Steam Lines

Seamless Steel Pipe is greatly superior to welded pipe for gas, oil and steam lines. It reduces losses and maintenance expense by eliminating the usual failures due to the welded seam in welded pipe. Every inch of weld in a welded pipe is a point of potential failure. Seamless pipe not only is free from welded seams, but it can be made of higher carbon, stronger steel.

Pittsburgh Seamless Steel Pipe is supplanting welded pipe for practically all tubular steel purposes. It is made in all sizes up to 13⅜ inches O.D., and can be furnished in various ranges of carbon or with copper content. For gas and oil lines it is available with ends beveled for welding joints or plain for use with patent couplings.

Made in Long Lengths

Its economies of service are supplemented by economies of construction. In sizes 6 inches and over it is available in long lengths up to about 40 or 45 feet, reducing to a minimum the number of joints and effecting a large saving in laying the line.

"Pittsburgh Seamless" tubing and pipe is made by piercing solid billets of basic open hearth steel, —a severe process that conditions the steel, giving it a fine texture and uniform strength. It is modern material for all important piping.

Pittsburgh Steel Products Co.
DIVISION OF
Pittsburgh Steel Co.

PITTSBURGH NEW YORK DETROIT
CHICAGO HOUSTON TULSA

Pacific Coast Distributors
Buck & Stoddard, Los Angeles, Calif.

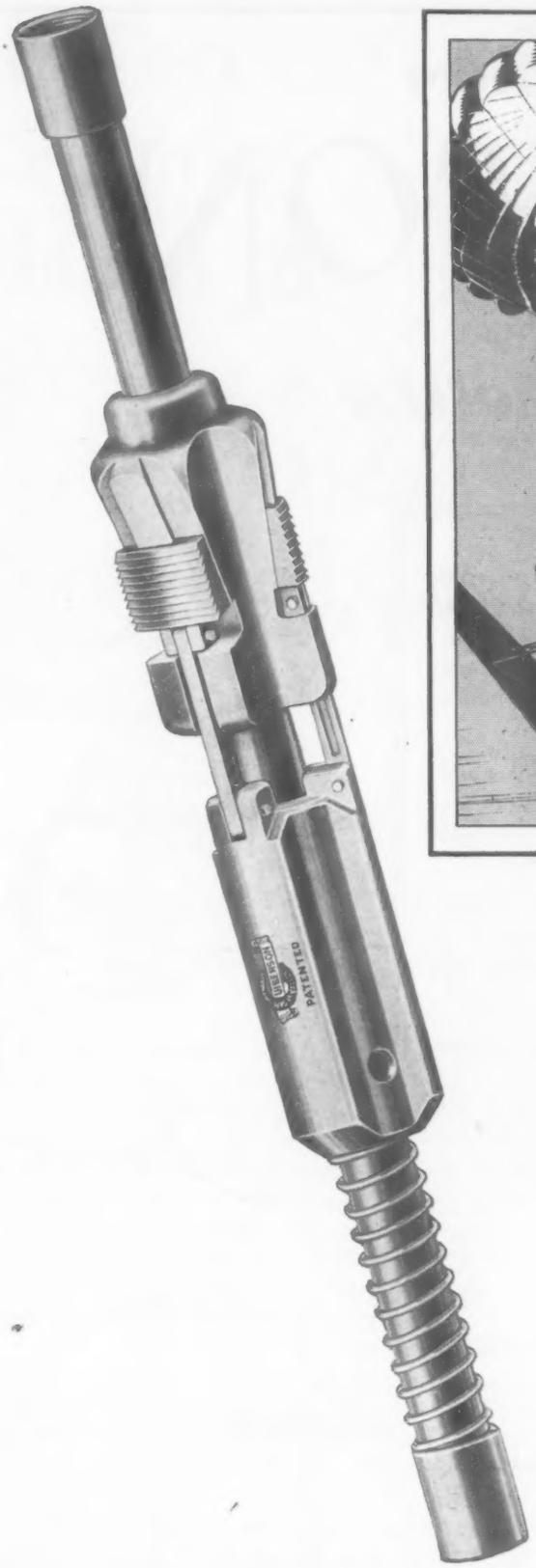
Largest Exclusive Makers of Seamless Tubing in America

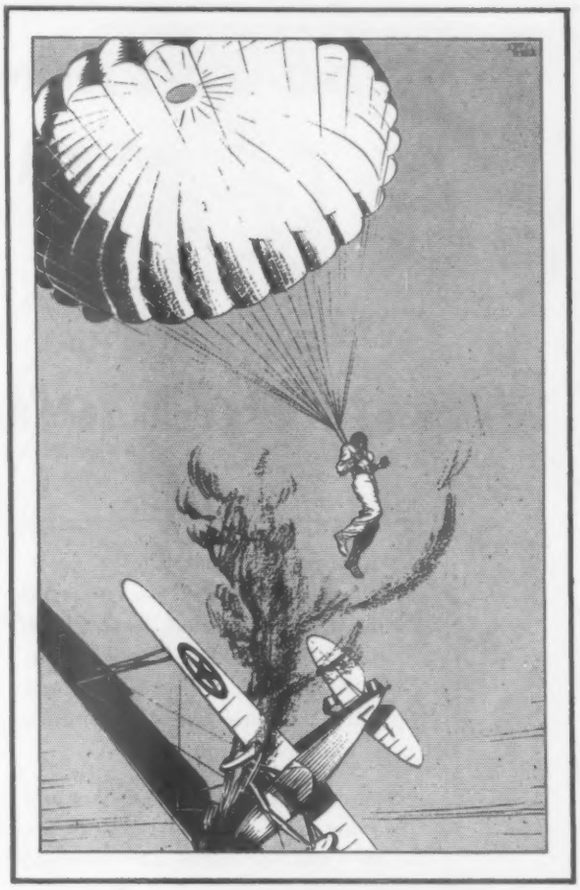
Stocks at Convenient Points

Pipe Storage Yards at Memphis, Tenn., and San Pedro, Calif., supplemented by jobbers stocks at other points, insure prompt service on deliveries.

Casing, Drill Pipe, Tubing, Line Pipe, Still Tubes

Say you saw it in The OIL WEEKLY





TUBING
without a catcher is like an aviator without a parachute

The aviator expects to land uneventfully in his plane, just as you expect your tubing to hang safely in the well. But—parachutes have saved lives, and the GUIBERSON Tubing Catcher has saved many thousands of dollars worth of tubing from being ruined by accidents.

A GUIBERSON Catcher on every string of tubing is a practice that saves money in the long run. Fully patented.

"Better Be Safe Than Sorry"

THE GUIBERSON CORPORATION
Box 1106, Dallas, Texas

California Branch: 1506 Santa Fe Ave., Los Angeles

402 W. First St., TULSA
321 Osage St., PONCA CITY
506 Trust Bldg., NEWARK, O.

GUIBERSON

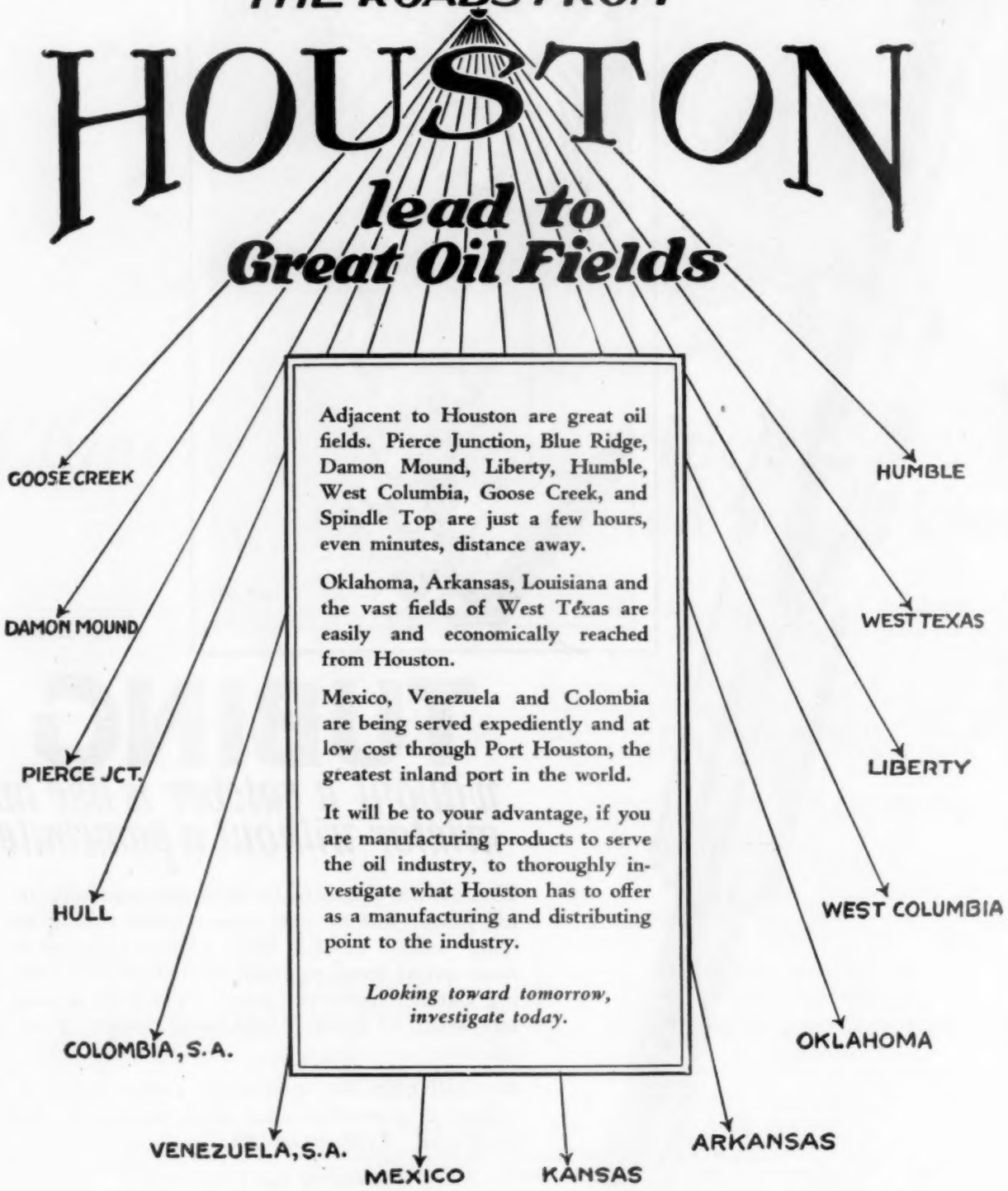
BETTER BE SAFE THAN SORRY

Say you saw it in The OIL WEEKLY

THE ROADS FROM

HOUSTON

lead to Great Oil Fields



Adjacent to Houston are great oil fields. Pierce Junction, Blue Ridge, Damon Mound, Liberty, Humble, West Columbia, Goose Creek, and Spindle Top are just a few hours, even minutes, distance away.

Oklahoma, Arkansas, Louisiana and the vast fields of West Texas are easily and economically reached from Houston.

Mexico, Venezuela and Colombia are being served expediently and at low cost through Port Houston, the greatest inland port in the world.

It will be to your advantage, if you are manufacturing products to serve the oil industry, to thoroughly investigate what Houston has to offer as a manufacturing and distributing point to the industry.

Looking toward tomorrow, investigate today.

Industrial Department

CHAMBER OF COMMERCE

HOUSTON, TEXAS

Say you saw it in The OIL WEEKLY

40-Ton Crusher Placed in Service *on* 2-Day Old Concrete Base

- - *made with Quikard Cement*

HAVING the rock crusher out of service meant tieing up the entire mine and mill of the Interstate Zinc and Lead Company, Baxter Springs, Kansas. So Quikard Cement was used in constructing the new crusher base. The base was finished at 9 o'clock one night and the crusher placed in service the second morning later. Quikard saved time and money by delivering its tremendous early strength making possible speedy construction with safety.

Quikard concrete can be used with safety from 20 to 36 hours after placing—saving you from 3 to 4 weeks on all concrete work. It is a true Portland Cement and mixed in standard proportions it produces 28-day strength in 24 hours, and develops increased strength thereafter! It requires no admixtures or accelerators. It not only meets U. S. Govt. and A. S. T. M. standard specifications for Portland Cement, but exceeds all strength requirements.

Floors, bases for machinery, powers, pumping equipment, booster stations, derrick piers, etc., made with Quikard can be used within 48 hours at the most.

Quikard is *not* quick-setting. It takes its initial and final set normally, allowing plenty of time for proper mixing, placing and finishing. It is worked just like Portland Cement, is unusually plastic and finishes quickly and easily. It produces an exceptionally waterproof concrete and is constantly uniform at all times. It forms a perfect bond with old or new Portland Cement concrete.

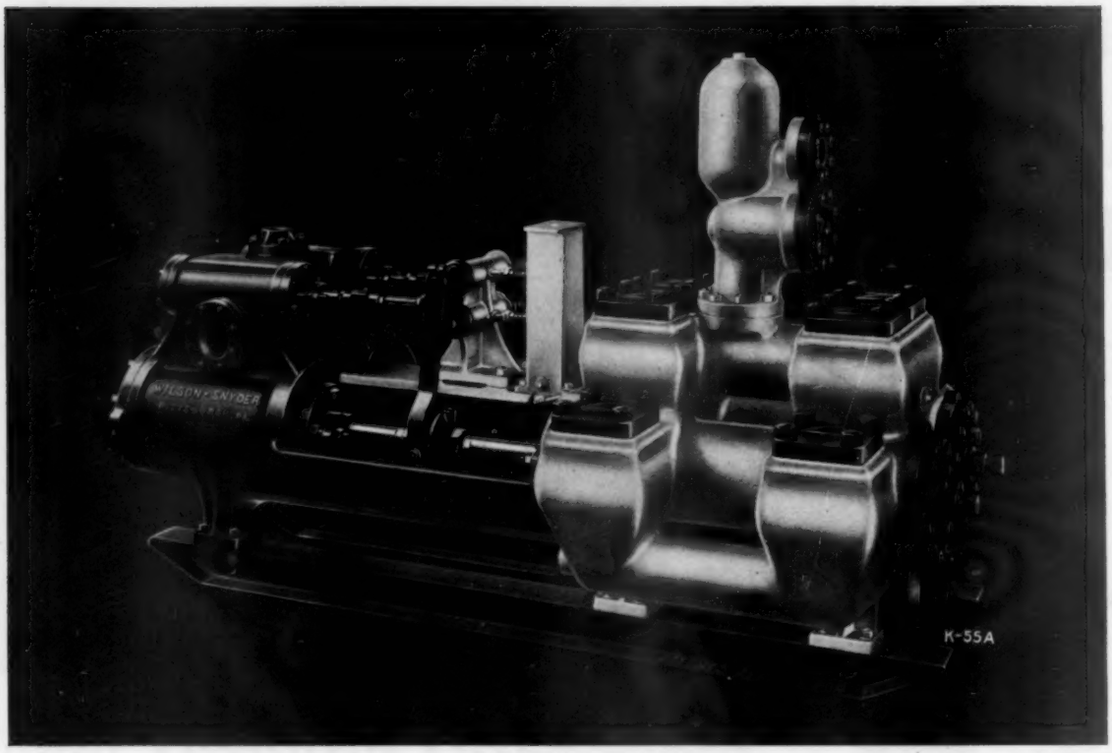
Write for full details about how this proved quick-hardening cement saves time and money in construction work. Packed in 5-ply paper bags, Quikard may be shipped in mixed cars with Ash Grove Portland Cement or Oilmax Cement.

Produced Only by
ASH GROVE LIME & PORTLAND CEMENT CO.
Founded in 1882
General Offices: KANSAS CITY, MO.
District Sales Office: OKLAHOMA CITY, OKLA.
Petroleum Bldg., Phone Maple 0642.

QUIKARD CEMENT

17

Our No. 18 Long Stroke Slush Pump has again reduced expenses!

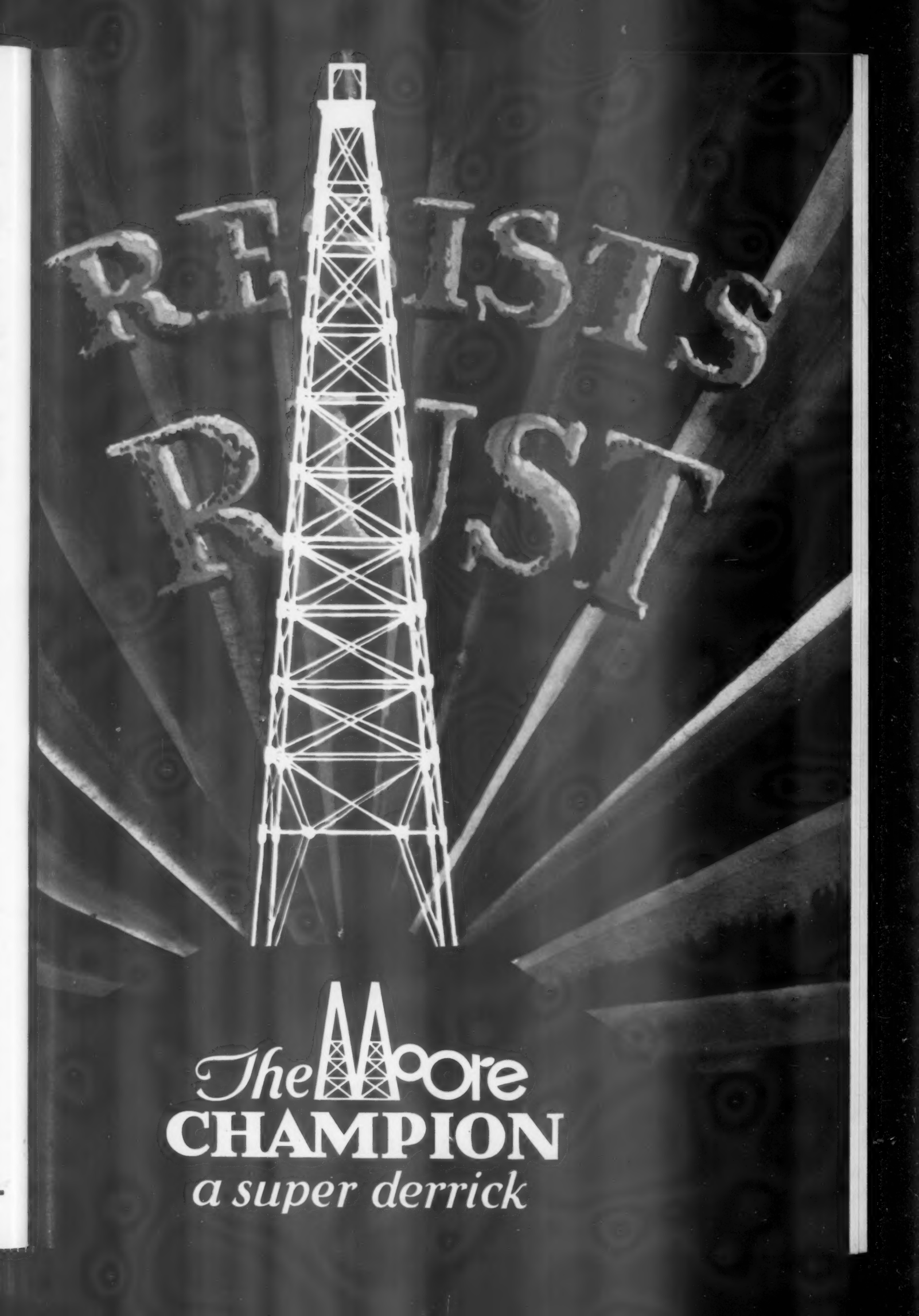


Without any renewal of parts –
Our Balanced Piston Steam Valves
have operated over a year –
We expect this to continue.

No Experimenting at Customers Expense!

WILSON-SNYDER
BUILDERS OF HEAVY DUTY PUMPS FOR OVER FIFTY YEARS
PITTSBURGH, PA U.S.A.

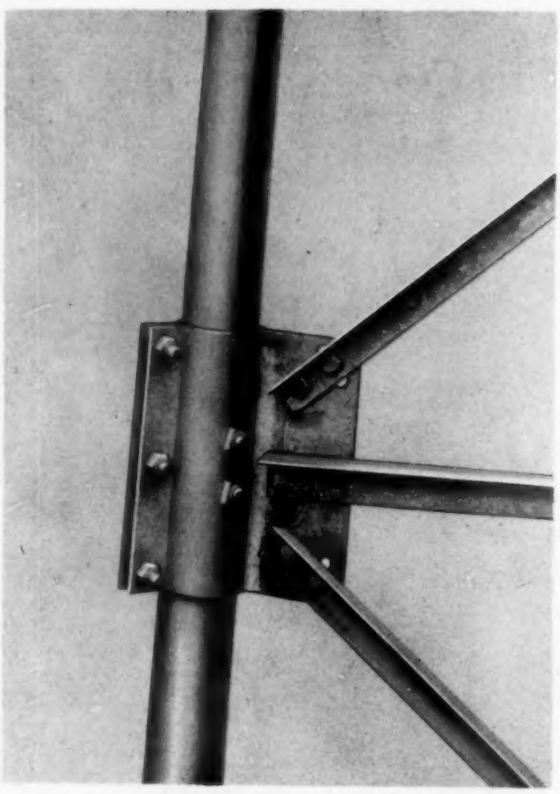
Say you saw it in The OIL WEEKLY


RESISTS
RUST
The Moore
CHAMPION
a super derrick

The Moore CHAMPION
a super derrick

Conquers the Giants in the Oil Country

WHAT an insidious enemy is the Giant of Rust! Silently but surely it eats the toughest steel. Protection against the rust evil is advisable in all fields; in some it is essential. The Moore Champion Derrick wears a coat of armor against the attacks of this destroying force.



The pipe leg sections of the Moore Champion are galvanized inside and out. This is the best rust-resisting treatment for this service and will give protection for a long period.

The structural bracing is furnished galvanized or aluminum painted, according to the needs and desires of the purchaser. A thorough process gives the aluminum painted surfaces a durable protective coating which will not flake off.

The illustration shows the method of joining leg sections and of attaching the bracing to the legs. Clamps surround the entire circumference of leg sections, thereby reinforcing them and increasing their capacity. Leg sections meet flush, giving a perfect bearing. Through bolts prevent them from being pulled out of the clamp. Two-bolt attachment of the bracing, as shown, is used where needed. Clamps are so designed that the same bracing can be used with either 3″ or 4″ leg sections. Only one wrench is necessary to tighten bolts, and assembly is quite rapid. Simplicity and convenience, together with strength, mark this construction.

Lee C. Moore and Company, Inc., Pittsburgh · · Tulsa

ESTABLISHED 1907

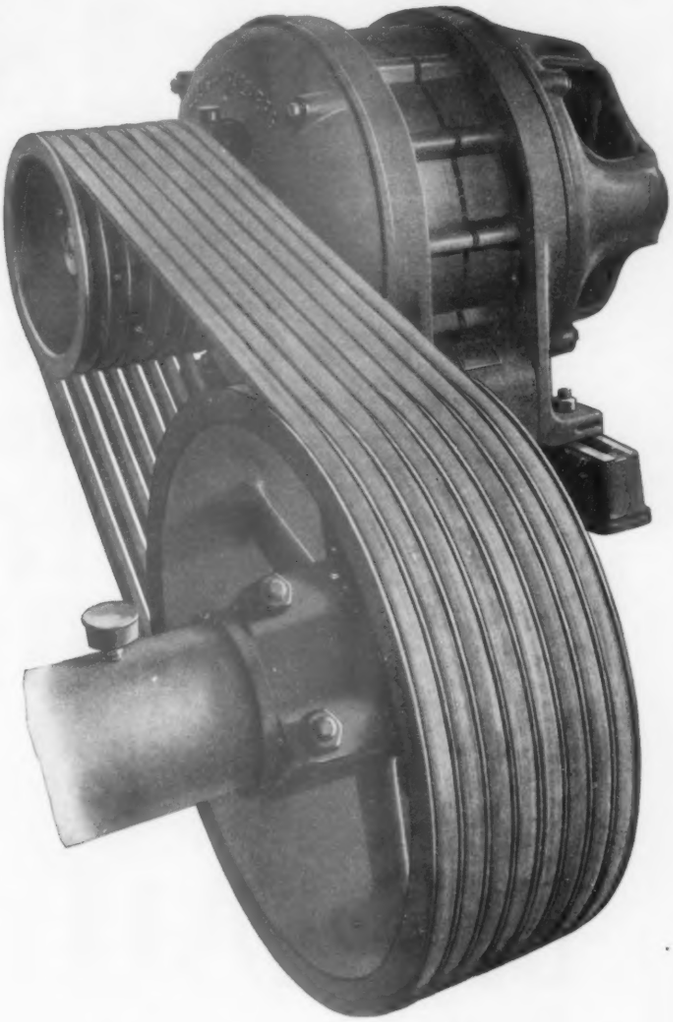
New York Offices: Oilfield Equipment Company
30 Church St., New York, N.Y.

DALLAS, TEXAS · HOUSTON, TEXAS · WICHITA, KANSAS
PARKERSBURG, W. Va. · CASPER, WYO. · SHREVEPORT, LA.

Stocks in All Principal Fields

TEXROPE DRIVES

Provide Efficient and Dependable Means for Transmitting Power to Oil Field Equipment



Where the loads are heavy and the going rough, the flexibility of the Texrope Drive is of great importance. It acts as a cushion between the driver and the driven machine, protecting both. The driven unit receives the power in a smooth, even stream, rather than a series of jerks, and the driver is not subjected to the punishment that it would take with other types of drives.

Texropes operate on extremely short centers, saving construction and housing expense. They are positive, the belts cannot slip; the greater the load the deeper they pull into the grooves and the less chance for slippage. The multiplicity of belts lessens the chance of breakdown. In short, the Texrope Drive is "The Flexible and Positive Multiple Belt Drive for Close Centers."

Oil Field Offices

DALLAS
HOUSTON
KANSAS CITY
NEW ORLEANS
DENVER
LOS ANGELES
SAN FRANCISCO
SAN ANTONIO
EL PASO

WESTERN SUPPLY COMPANY
TULSA, OKLAHOMA

ALLIS-CHALMERS

MILWAUKEE, WIS. U. S. A.

Say you saw it in The OIL WEEKLY

GOODALL

BRUTALLY STRONG

Yet Unmatched in Flexibility

GOODALL Semi-Metallic Rotary Hose is meeting with notable success because it has the rugged strength necessary to stand up under hard usage—yet is the most *flexible* metal hose on the market.

Its heavy steel armor withstands the highest pumping pressures and gives positive protection against outside wear and damage. The inner tube of highest grade rubber defies the abrasive action of sand-laden slush. The "ball joints" allow free flexing without interfering with internal clearance. Drillers find that the BOSS DUPLEX COUPLINGS "stay put."

We also recommend G. S. M. extra heavy Combination Cementing and Rotary Hose, Manifold Hose, and Steam and Water Hose.

"If CONTINENTAL Sells It, There Is No Better"

THE CONTINENTAL SUPPLY COMPANY
General Offices: St. Louis.
Export Office: 74 Trinity Court, New York
London Office: 316-317 Dashwood House, Old Broad St., E.C. 2
THE CONTINENTAL SUPPLY COMPANY, Ltd.,
69 Thomas Block, Calgary, Alberta, Canada.

CONTINENTAL

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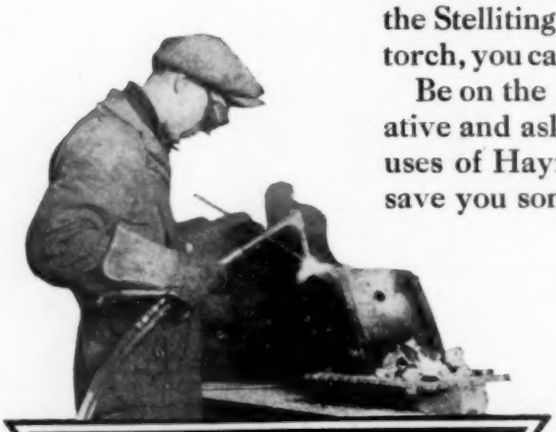

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Say you saw it in The OIL WEEKLY

MAY 29 1928

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The OIL WEEKLY

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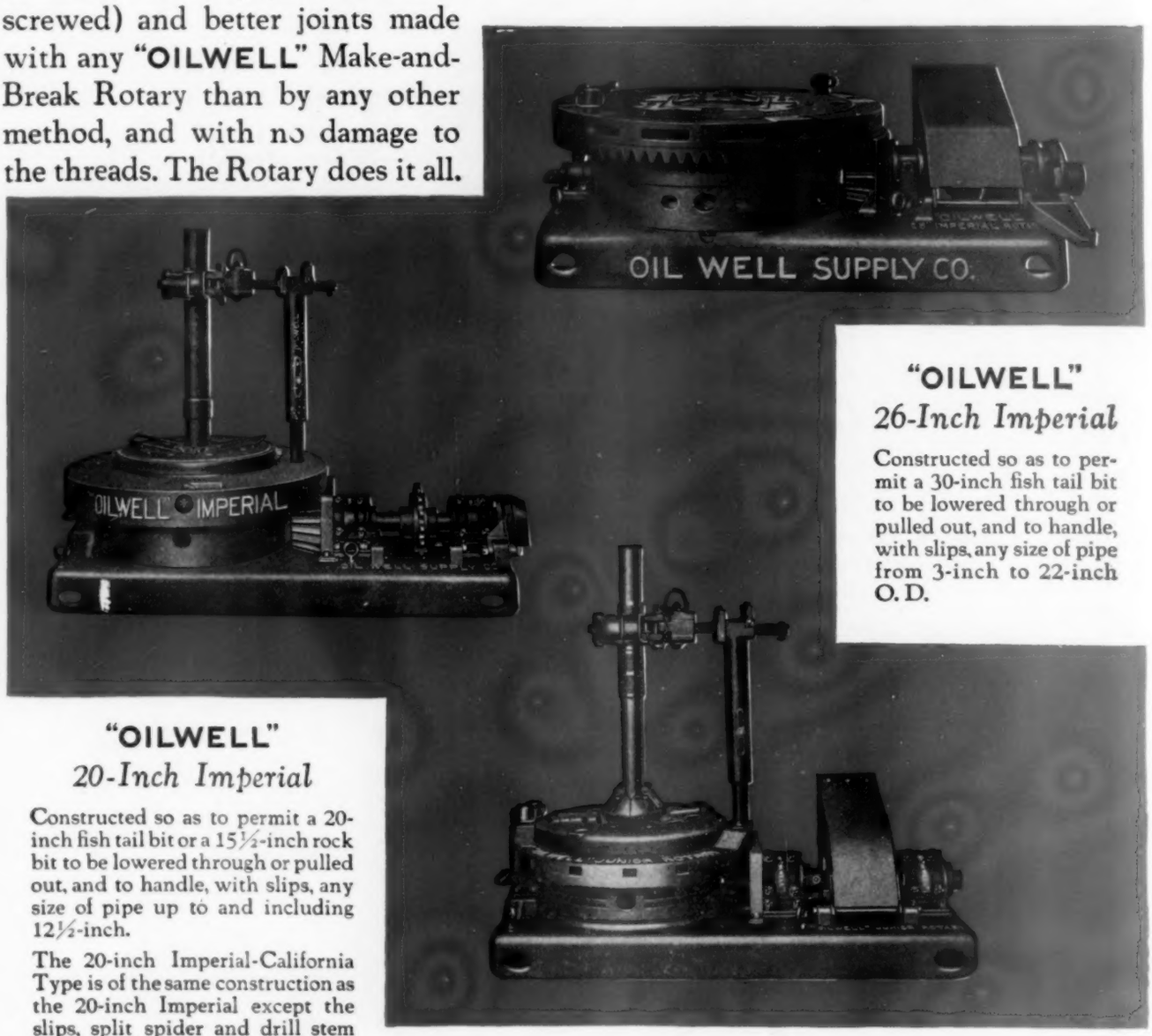

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Traders Expect Early Advance In Crude Prices

Refiners enjoying most profitable period in months, with market advancing, hesitate to contract too far in future; sales of stored crude held up

By KENT RIDLEY

WITH refiners enjoying the most prosperous period in many months, refined products in demand at advancing prices, and further evidence that threatening areas can be controlled by proration agreements and official orders, everything is all set for an advance in crude. Already premiums are being paid both in the Mid-Continent and in California. In the latter area the extra price offers are not based so much on scarcity of oil as the fact that desirable charging stock is held by strong units who want it for their own stills.

Production took another drop of 16,000 barrels last week, according to A. P. I. estimates. Texas again was the cause of the drop, Winkler County being as much below its prorated allowance this week as it was above on the previous report. Long Beach sent the California average up 9000 barrels, giving that area the distinction of being the only large producing district to show a gain.

Refiners have a good demand and price for all products except fuel oil, and conditions are approaching a stage where that item can profitably be put through cracking stills by the independents.

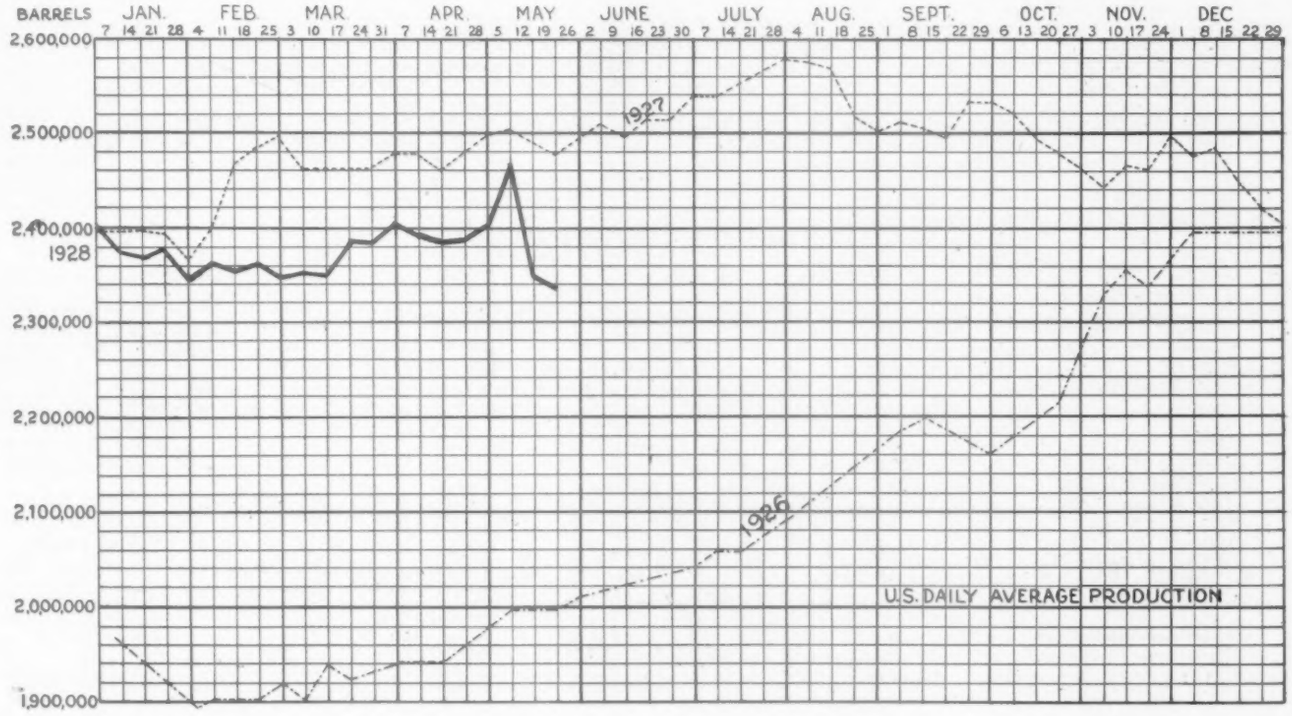
Representatives or responsible companies and individuals are canvassing the North and West Texas districts for the purchase of producing properties, while numerous inquiries are being made for large quantities of storage oil in the latter district. Owners of producing properties in the light oil districts are confident of a substantial increase in posted prices shortly, and are not inclined to dispose of their holdings on the low market. Continued enforcement of production restrictions in the Yates and Chalk-Roberts fields, and more recently the Hendrick field, has eliminated all "distress" oil in the West Texas district, and comparatively little oil is now available for tank car movement from the Hendrick field other than that sold on contract over the balance of this year, or more. Operators in this field that cater to tank car sales are hardly able to meet contracts on their proration allowance, and are to soon make a plea for a higher daily production allowance for the field.

The gasoline market in the North Texas district continues to follow an upward price trend, and early this week U. S. motor gasoline was in brisk demand at 7½ cents per gallon, or better. Most plants in this district are booked ahead on orders and are demanding higher prices for future deliveries, owing to the immediate prospect of a crude price advance.

Removal of the bulk of cheap gasoline from the market has gradually strengthened refined price structures until U. S. motor grade stands at a common price of 7½ cents throughout the Mid-Continent. Heavy buying for export, plus increased consumption locally, is causing continued withdrawals of stored stocks in the face of increased refinery runs of crude oil.

The outlook for crude prices is considerably strengthened with decision on the part of operators to unanimously extend the drilling restrictive program an extra 30 days to June 15 at Little River. While Little River reached a new peak of better than 51,000 barrels early this week, the rise is temporary, and the pinching of

UNITED STATES CRUDE PRODUCTION TREND



flush wells will bring a return decline to the field. The shutdown program for the area now places big new flush production at beyond August 1 at the earliest date, at which time Greater Seminole is estimated to be at a considerably lower figure. With the unanimous spirit of continued conservation going strong, it is indicative of even further restrictions in the event the market is not strong by the time set for renewed activity.

Only about 7000 barrels of oil is being run to storage in the Seminole fields for holding over a long period, with approximately 8000 barrels of the 15,000 barrels running to storage being removed daily by tank cars.

With small independents offering premiums ranging from 10 to 25 cents per barrel for Long Beach crude, the gradual rise in production does not appear nearly as serious as the figures would indicate. The situation is not brought about by an actual scarcity of oil, but by the inability of the small refiner to get his hands on an adequate supply of light oil. Production is so completely absorbed by the larger companies that what is left is snapped up at a premium. Bids for a large production over a period of years are being made and in almost every instance the purchaser is willing to pay a premium above posted prices.

The rise in production in the Long Beach field still is not viewed with alarm, although the area seems destined to pass the 200,000-barrel mark within the next few weeks. The situation does not resemble that of 1923, when two other major districts joined with Long Beach in demoralizing the world market. All other large fields in the State are slowly declining and July should see the peak in the field. The decline will be very slow but barring unexpected developments in the newer fields, the local market will easily absorb all offerings.

A 5300-barrel reduction in the Veutura field proves that the conservation committee means business in this area. The curtailment was brought about by the reprorating of runs from the field on an 80 per cent. basis. Further reductions will be made from time to time.

Gasoline consumption in California is breaking all records and the export demand has shown a still better tone. Shipments of California gasoline to Atlantic ports are increasing steadily, some sections of the East showing a decided preference for Western gasoline.

Spray of Oil With Gas in Coleman County

Coleman, Texas.—A new pool for Coleman County was in prospect early this week when The Texas Company et al's wildcat producer on the J. W. Vance land continued to spray high gravity oil with a flow of eight million cubic feet of gas from sand at 2043 feet, while tankage was being erected to drill in and test. This producer is located in the southeast corner of the southwest quarter of Section 101, E. T. Ry. survey, and about 12 miles south of Coleman. In the event a commercial oil well is completed, a pipe line connection will be made by The Texas Pipe Line Company from the Fry field, a distance of about 15 miles.

The Texas Company owns a half interest and operating control of a solid block of 1120 acres, with this wildcat gasser in the center, and the outstanding interest is held by the McMan Oil & Gas Company and F. P. Zoch, San Antonio. The Texas Company has been acquiring additional acreage since the strike was made. The well is making the gas from pay at 2035-42 feet, and drilled about one foot into the oil sand to a total depth of 2043 feet.

E. J. Cunningham et al's Jennings 1-C, a south offset to a wildcat producer completed in eastern Coleman County on the Lipscomb survey, is showing for a 100-barrel well after being shot with 20 quarts at 1164-78 feet.

Los Angeles—The Ohio Oil Company abandoned Miller 1, section 9-4-11, at 6080 feet, having failed to find a good showing of gas or oil at any depth. The well was located about midway between the Seal Beach and West Coyote fields.

Storage Tank Fired

Dallas, Texas.—Electrical storms have been centering on Magnolia Petroleum Company's tank farms lately, having lost a 55,000-barrel tank filled with oil at Wewoka and Addington stations, Oklahoma, last week, and two direct hits of lightning May 17 and 18 exacted a toll of three 80's filled with West Texas crudes at the Midland tank farm. This latter farm was struck by lightning at noon March 9 and five 80's and a total of 386,350 barrels of oil was destroyed. However, Atlantic Oil Producing Company lost 307,000 barrels of the oil consumed in this fire, account of having leased the tanks temporarily.

Kevin-Sunburst Advance

Great Falls, Mont.—The second advance in the posted price of Kevin-Sunburst crude petroleum at the wells was announced by Ohio Oil Company, effective May 18, of 15 cents per barrel. This makes the price $1.65 per barrel. With the exception of the price at Lake Basin ($2.20), this is the highest price posted for crude in the Rocky Mountain region. It is 35 cents higher than the highest gravity Salt Creek crude.

Iles Field Lease

Denver, Colo.—Iles Investment Company of Craig Colorado, has leased 160 acres in the Iles field, Northwestern Colorado, to the Texas Production Company for a reported bonus of $125,000. The terms of the lease call for a cash payment of $50,000 and the remainder of the purchase price to be paid out of production of oil from the lease. In addition the Iles family is to receive a one-eighth royalty from the wells.

Los Angeles—The California Petroleum Corporation, now a subsidiary of The Texas Corporation, has completed its removal from the Security Building to its own quarters, 929 South Broadway. The company has a 30-year lease on 12 of the 13 floors and the structure will be known as the California Petroleum Building.

Details on Critical Fields

	Oil wells completed	Total initial production	Initial per well	Number producing wells	Daily production barrels	Daily production per well	Rigs up	Wells drilling
WEST TEXAS—								
Hendrick	161	610,575	3,792	169	135,645	803*	35	116
Church & Fields	181	201,110	1,111	179	43,320	242	1	1
Gulf-McElroy	60	52,050	867	60	14,875	248	..	2
Yates	198	1,309,950	6,616	196	49,765	254*	3	10
Total	600	2,173,685	3,623	604	243,605	403	39	129
TEXAS PANHANDLE—								
Hutchinson County	1,098	544,820	496	967	38,570	40	5	28
Gray County	223	98,355	441	207	18,740	91	16	46
Carson County	179	59,030	330	149	7,120	48	3	5
Wheeler County	42	14,230	339	36	1,010	29	5	9
Total	1,542	716,435	465	1,359	65,440	48	29	88
OKLAHOMA—								
*Seminole	1,320	1,629,212	1,234	1,095	271,138	247	21	55

(*) Production partially pinched.

State Line Area Give Proration Problem New Angle

North Winkler County production extends into New Mexico; Texas will issue order to hold drills, but Sister State's action in doubt

By H. H. KING
Staff Representative

FORT WORTH, Texas.—Lease owners on the Llano structure in Northern Winkler County, West Texas district, offered their cooperation in the efforts of the Texas Railroad Commission to retard the development of this prospective flush oil area at a conference held here May 18 by the commission, and the latter conservation body will issue a temporary order against new drilling. The temporary order forbidding development will be in effect for about 60 days, or until a permanent plan can be worked out to regulate production in conjunction with lease and royalty owners across the line in Lea County, New Mexico, which appears to share the oil and gas producing structure about equally with Texas.

The Llano structure has been producing oil in small quantities since October, 1927, when the Llano Oil Company, Fort Worth, completed the discovery well on the Scarborough ranch, and on the following month the Texas Production Company uncovered both oil and gas production in commercial quantities on permit land about four miles to the north in New Mexico. The area was heralded as a threat to the general crude situation May 9 when Gibson-Johnson and the Kessler-Logan Interests' Leck-Daugherty 1, located three miles southwest of the Llano discovery well, tested for a high gas production and undetermined flow of oil and water during a 45-minute ungauged test at a total depth of 3167 feet. This well was opened May 16 and made 98 per cent. water, but retained its heavy gas flow and offers ample proof of a flush oil area being in prospect.

Failure of this well to produce commercial oil when given a test in tanks prior to the Fort Worth conservation meeting, did not lessen interest of the majority of the operators towards having the Railroad Commission step in promptly and take charge of the situation before a number of proposed locations are started up. R. D. Parker, chief supervisor of the oil and gas division, presided for the commission, and J. D. Collett, Fort Worth independent producer, who is chairman of the Hendrick field advisory proration committee, was unanimously voted as chairman of the meeting.

State Line Problem

The commission's order governing the proration of crude runs in the Hendrick field, or Winkler County district, as of May 5, 1928, already applies to the Llano structure, but it is desired to hold back this new area, if possible, while the situation is more complicated because of a part of the structure lying in New Mexico. The latter State is not organized to deal with flush production problems, and it has been striving for years, with little success, to have the petroleum industry expand within its borders. This fact is expected to become a stumbling block in the path of the Texas conservation authorities in restricting both drilling and production until adequate pipe line outlets and markets can be provided to handle the oil as produced from the entire structure. The acreage in New Mexico that is considered likely to produce is owned by the State, U. S. Department of Interior, and also by individuals, thus making it more difficult to perfect a development program that will please all concerned. The Llano structure is identified as being somewhat similar to the Hendrick field, and excessive drainage on any part of same will affect the ultimate recovery of the section that is not allowed to share in the heavy production.

H. F. Gibson, Abilene, who is one of the owners of the well that gave rise to a conservation movement being started in the Llano area, expressed an opinion that the Leck-Daugherty well was drilled too deep into the lime with rotary before testing for production, and that the water is coming from the bottom of the hole. The well was carried 480 feet into the big lime, while a dry hole about five miles to the southwest did not encounter water until 550 feet in the lime. Gibson reviewed the production performance of the well from the time that it was swabbed down to test to the evening prior to the meeting, and explained that the flow ranged from 300 to 400 barrels of fluid per hour, with 850 pounds back pressure when restricted to two 1½-inch chokes. The rock pressure increased to 1200 pounds when the smaller chokes were applied. The last 40 feet of formation drilled showed lots of porosity, with indications of a cavity at the bottom, thus making it difficult to plug back and save the well. A string of eight-inch casing cemented with 500 sacks at 2683, leaves 484 feet of open hole. Gibson offered to cooperate in retarding development of the area, and agreed to hold the production of his well to 100 to 200 barrels daily in the event its water troubles are corrected sufficiently by plugging back.

Registrations at the North Winkler County, Texas, conservation meeting in Fort Worth May 18 included the following officials and legal representatives of the companies owning leases and royalties in the area:

F. J. Adams, Gulf Production Co.
E. G. Allen, Roxana Petroleum Corp.
A. W. Ambrose, Empire Gas & Fuel Co.
Hines H. Baker, Humble Oil & Ref. Co.
J. A. Bermingham, The Texas Company.
G. H. Chizum, Gibson-Johnson Interests.
J. D. Collett, O'Keefe & Collett.
C. O. (Ted) Collins.
H. J. Corcoran, Marland Pipe Line Co.
J. P. Cusack, Skelly Oil Co.
Warner Clark, The California Co.
David Donoghue, T. P. Coal & Oil Co.
W. C. Franklin, Tidal Oil Co.
Jas. R. Gahan, Tidal Oil Co.
H. F. Gibson, Gibson-Johnson.
W. B. Hamilton, W. T. C. of C.
John Hancock, T. P. Coal & Oil Co.
I. G. Harmon, Marland Prod. Co.
Fred K. Haskell, Empire Gas & Fuel Co.
Dana H. Kelsey, Prairie Oil & Gas Co.
E. A. Landreth, Landreth Prod. Corp.
W. L. Lewis, Llano Oil Co.
C. L. Morgan, L. H. Wentz Interests.
Edgar J. Marston, T. P. Coal & Oil Co.
R. D. Parker, Railroad Commission.
D. C. Proctor, Gulf Production Co.
J. H. Reynolds, Cranfill & Reynolds, Inc.
Wm. J. Rieker, Marland Production Co.
W. H. Titterbusch, Phillips Pet. Co.
B. S. SoRelle, Pure Oil Co.
B. H. Stone, Llano Oil Co.
John R. Suman, Humble Oil & Ref. Co.
J. H. Tucker, Llano Oil Co.
L. C. Turman, Turman & Maxwell.
Wm. A. Vinson, Prairie Oil & Gas Co.
Robt. B. Violette, Independent O. & G. Co.
C. P. Watson, Federal Royalties Co.
L. E. Waudel, Winkler Co. Roy. Own's Assn.
K. L. Wickett, Barnsdall Oil Co.
Joe M. Wilson, Simms Oil Co.

Favor Shut-Down

D. C. Proctor, attorney for Gulf Production Company, announced that his company, which is a large lease owner in the prospective area, was in favor of shutting the pool in temporarily until a proration plan suitable to the field could be perfected with New Mexico. R. R. (Bob) Penn, Dallas operator, also voiced his approval of this suggestion, and recommended that a representative of the U. S. Bureau of Mines be called upon to assist in saving the well.

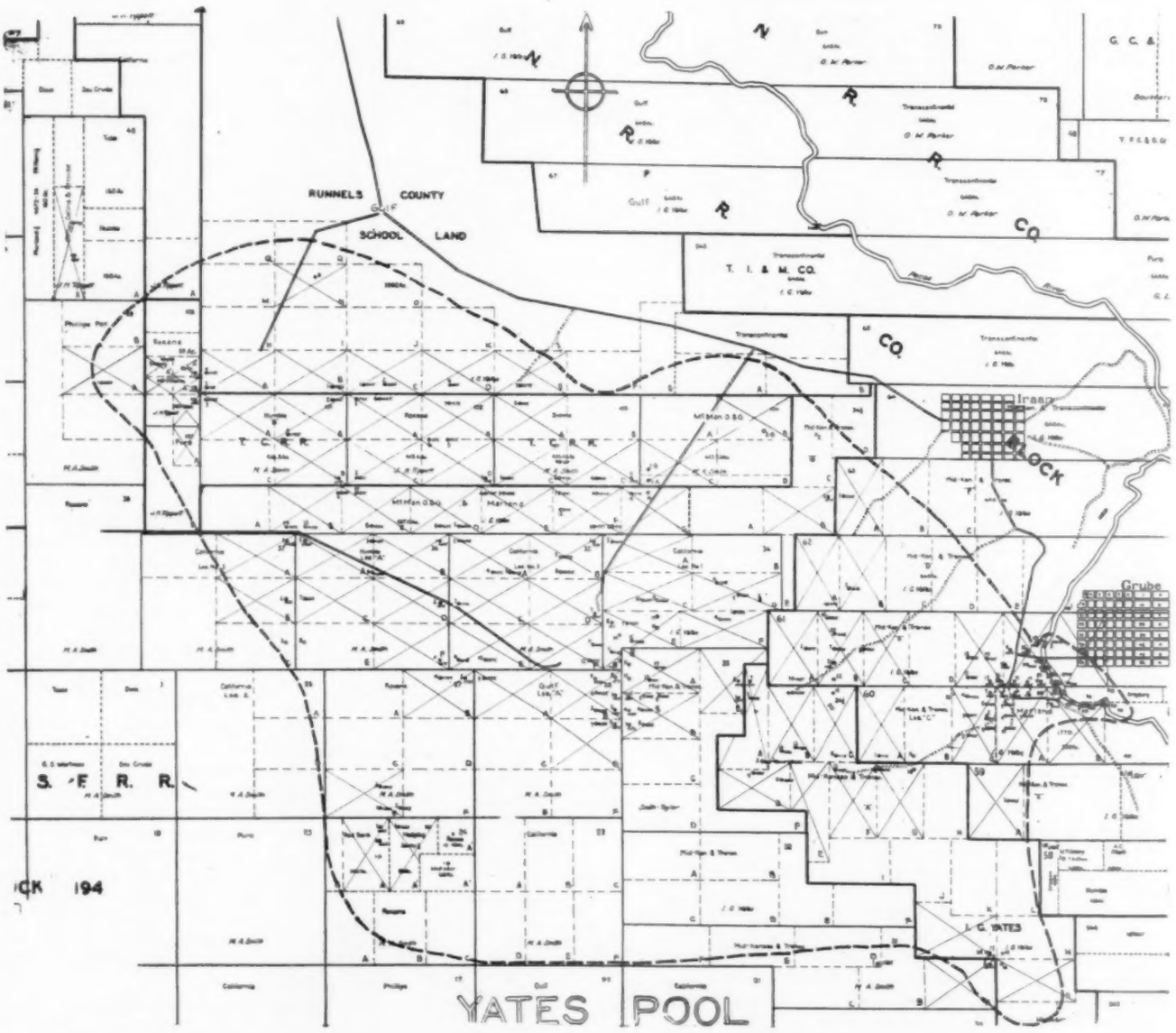
Question arose as to Roxana Petroleum Corporation, which acquired a one-half interest and operating control of the Llano Oil Company's discovery well and acreage block while the test

was in process of completion, proceeding with the drilling of a third test on the Scarborough land. Roxana-Llano's Scarborough 3, Section 2, is located on a direct line between the Leck-Daugherty well and the New Mexico well of The Texas Production Company, and at last reports was drilling at 120 feet, being the only active test now on the Texas side of the structure. E. G. Allen, general superintendent for Roxana, informed the commission, and gathering that Roxana's attorneys had advised the starting of this third test on the Scarborough land to fulfill lease obligations, and that a fourth test is due shortly. W. F. Scarborough has notified the 16 concerns holding leases on his land around the Roxana-Llano small wells that drilling must be started by October in lieu of rental payments. The Hendrick field advisory committee, headed by J. D. Collett, plans to have Mr. Scarborough make some sort of a compromise on these demands.

Hines H. Baker, attorney for Humble Oil & Refining Company, informed the gathering that New Mexico passed laws in 1925 granting broad authority to the Commissioner of Public Lands, same being somewhat identical with those applying to rules on federal permits. The State agencies as well as the Department of Interior, Washington, must be dealt with in perfecting a conservation plan. Hines predicted that if Texas operators open up the field that little co-operation could be expected from New Mexico authorities towards proration.

I. G. Harmon, Ponca City, production manager for Marland Production Company, which has a 65 million cubic foot gasser at 2927 feet on the south line of New Mexico, stated that his company was not desirous of building up production in this area at present. John R. Suman, Houston, Humble Oil & Refining Company, stated that his company was not in favor of doing any drilling on its leases for 60 days or more.

W. B. Hamilton, Wichita Falls operator and chairman of the oil and gas bureau of the West Texas Chamber of Commerce, was of the opinion that the Texas Railroad Commission should not issue new drilling permits, and shut down all operations in the Llano area for 60 days. He also informed the operators that the bureau would make formal request for the shutting in of this area by the commission in the interest of conservation. This bureau was instrumental in the commission ordering proration in the Hendrick field.



—Courtesy Lockwood's Texas Oil Report, Fort Worth.

Showing the various leases in the Yates field, West Texas district, divided into 100-acre units in accordance with the new proration plan that is to be in effect during the last six months of this year

Revise Basis of Proration in Yates Field

Conference of operators tentatively agrees upon plan patterned after Hendrick rules, and would have future enforcement by railroad commission

By H. H. KING
Staff Representative

FORT WORTH, Texas.—Adoption of a new plan of proration for the Yates field to succeed the present proven acreage plan which expires July 1, was tentatively agreed upon at a meeting of the majority of lease owners here May 17, and members of the plan are to vote this week to determine if the majority are in favor of future enforcement of proration being placed in the hands of the Texas Railroad Commission. In the event the Commission is requested to issue an official order covering the proration of pipe line runs in this field, a full time umpire will be engaged, while an advisory committee of five operators will advise with and make recommendations to the Commission. This committee will succeed the present executive committee consisting of three operators, but the general committee, which is made up of one representative of each operator, will remain intact.

The immediate drilling of at least 51 new wells will result from the change of proration plans, as allowable production for each lease during the last one-half of this year will be determined by dividing same into 100-acre units and allocating the total pipe line outlet on a basis of number of producing units and average potential production of the wells on each unit. Upon the completion of these new wells the oil drainage will be equally distributed over the entire structure, with the heaviest drainage taking place in the areas that are proven to be the most prolific by actual gauges of wells on one-hour open flow. After all units are on production little incentive will exist to drill more wells, except in instances where unit owners are of the opinion that a larger potential can be registered by picking a location at a different site on the unit. However, those drilling unnecessary wells take the risk of completing smaller producers, thereby cutting down their average potential production.

Pipe Lines

The pipe line outlet for the Yates field is 51,500 barrels daily, and has been at this level since the Shell Pipe Line Company's six-inch line began taking Roxana Petroleum Corporation's production April 1. The actual capacity of the six lines leading out of the field to connect with West Texas trunk line systems, or with tank car racks and tank farms, is much greater than that nominated, and it is possible for the runs to be increased in the near future. Gulf and Humble have a single eight-inch line connecting the field with their trunk line system, while Illinois Pipe Line Company has a six and an eight-inch line extending from the field to McCamey, but a portion of this capacity is being used by Humble. Illinois also has an eight-inch looped line extending south from the field via its two million barrel tank farm at Del Rio, thence to Lytle, where a connection is made with Humble's Kemper-Ingleside trunk line. Shell has a six-inch line extending from the field to its tank farm and trunk line terminal at McCamey.

A number of proration plans were submitted at the last meeting of Yates field operators, and the operators devoted a full day to the discussion of the merits of each one, and finally decided on the above mentioned plan, which is patterned after the Hendrick field method, except that an average potential of wells on each unit is used, and also larger sized units. Yates field operators are desirous of restricting drilling to a minimum, as the average daily production of the 200 completed wells in the field is only about 260 barrels, and a higher production is not in sight, although these wells are credited with having a potential daily flow that would exceed the peak flow of any field for a brief period.

Except for two small lease owners on the southeast side of the structure, where water is being produced with the oil in large quantities, the Yates field producers are adhering to the proration plan. These two exceptions are not offering any interference, and are not likely to.

Advisory Committee

The advisory committee nominated at the last meeting to succeed the executive committee, included the following three members of the latter committee: W. A. Moncrief, Marland Production Company; M. E. Wagner, Mid-Kansas Oil & Gas Company, and Warner Clark, The California Company; and F. J. Adams, Gulf Production Company; and W. L. Todd, Simms Oil Company.

A committee consisting of the following attorneys was appointed by the Yates field operators to draft an order to be submitted to The Texas Railroad Commission for application to the field during the last half of 1928: D. C. Proctor, Gulf Production Company; Hines H. Baker, Humble Oil & Refining Company; and Wm. J. Rieker, Marland Production Company.

Regulations Proposed

The order has been completed and dispatched to the various lease owners for approval. It includes the usual conservation rules enforced by the Commission regarding oil and gas waste, as well as forbidding the use of air-gas lifts. No wells shall be shot without approval of the Commission, and the danger of polluting the porous lime formation furnishing oil and gas production with bottom hole water through drilling too much pay gave occasion for a special rule that will forbid the operators from drilling more than 225 into the lime.

As explained above, the producing area is to be divided into 100-acre units for the purpose of proration, and each unit shall be entitled to produce a quantity daily equal to the quotient obtained by dividing one-half of the daily maximum amount of oil permitted to be produced daily in the field by the number of 100-acre units, without reference to the number of wells located on such units. In addition each unit shall be entitled to produce daily its prorata of one-half of the daily maximum amount of production permitted in the field, based on the ratio of the average daily potential production from such unit to the average daily potential production of the field. No oil shall be produced from the 100-acre units in excess of this amount.

Provisions are made for split ownership of 100-acre units by allowing each owner to share ratably in the amount that each unit is entitled to produce as above determined.

Potential production is to be gauged on or subsequent to the first day of each calendar month, and such determination shall control proration for the ensuing period.

Cody, Wyo.—Two wells were completed and one new one spudded in in the Oregon Basin field this week. The completions were the Orchard Oil Company well on section 28-50-100, which has an initial estimated production at 3890 feet, and the the Ohio Oil Company's Baston 1, 5-50-100, which has shut in an initial 250 barrel production at 3805 feet. Enalpac Oil Company spudded in its Cactus 1, section 5-51-100; it is the only new test started during the week.

Little River Due for Quick Decline From New Peak

Extension of shut-down agreement and completion of series of test wells in south extension should stop upward trend

By WALLACE DAVIS
Staff Representative

TULSA.—South Little River field early this week was about to close its exciting session of well testing for determining acreage values there, and, due to excellent success in carrying over the shutdown program an extra month, is scheduled to shortly fall into another period of comparative inactivity that should bring declining production. Between June 1 and August 1 is this market breaking area's chance to right itself to the point of standing considerable new flush oil that will come, except for future extension of conservation agreements, during August.

The temporary stumbling block to an extension of another 30 days of the agreement, Reiter-Foster Oil Corporation's reluctance to join in, was definitely removed late last week when this company favored making the curtailment unanimous, and signed the agreement for extension of the drilling date to June 15. The plan also provides that no wells now pinched in shall be opened to capacity flow until the first of this crop of drilling wells is completed. This program would place completion date at least at August, during which time little chances for new production are possible for Little River.

Sixth Producer

The sixth producer of the 10 official test wells was completed Saturday, May 19, leaving two other producing possibilities, one abandoned hole and one drilling well, which is marked as a failure. Furthermore, this area is quieted to the extent of leaving only one of the six South Little River offsets to be completed. Magnolia's Reed 1, southwest offset to Independent's Harris 1, discovery in Section 23-7-6, and located in the northeast of the southeast of the northeast of Section 22, was completed late in the week, and gauged 4697 barrels May 21 from Wilcox at 4124-31 feet. It was due to be pinched to 100 barrels Tuesday of this week.

Carter Oil Company's Larney 1, in the northwest corner of Section 24-7-6, the sixth test well to produce, flowed 2960 barrels Sunday from Wilcox sand at 4337-46 feet. It was to be pinched Wednesday of this week. The only remaining wells in the testing group were holes full of oil Monday, indicating good wells. One, Roxana's Hotulka 1, in the northeast of the northwest of Section 23, was filled with oil from Simpson sand at 4290 feet after topping the Viola lime at 4180 feet. T. B. Slick's Williams 1, the other test well, is located in the northeast of the southeast of the northeast of Section 15-7-6, and Monday morning was filled with oil from the Simpson at 4290 feet. The remaining test well of the group is Carter Oil Company's Fish 1, in the northwest of the southwest of Section 12-7-6, which found water in both the upper and lower Wilcox. It was plugging back early this week for a possibility of production from an upper showing of oil, which, incidentally, did not offer any hope of making a producer.

Little River at Peak

Resulting from two big producers in South Little River late in the week this field found a new peak at Monday's gauge, reaching 51,831 barrels, and Greater Seminole staged a comeback of nearly 5000 barrels above the previous day and 8021 barrels from Friday's gauge, at which time the five pools reached their low mark of the year, 269,184 barrels. Even with this increase, however, the daily average failed to return to its position of one week ago. Production by fields for the gauges of May 14, May 20 and 21 are as follows:

Fields	Wells	May 14	May 20	May 21	Wells
Little River	124	47,060	48,474	51,961	125
Bowlegs . .	312	67,420	63,859	63,684	313
Earlsboro .	284	95,767	93,224	93,573	283
Seminole . .	302	53,791	52,862	52,353	303
Searight . . .	69	14,656	14,434	14,634	69
"8-5"	2	....	....	....	2
Totals . .	1,091	278,694	272,853	277,205	1,095

The above production figures for the gauge of May 21 fail to show the near future strength of Little River, for, as mentioned before, about 7000 barrels of this yield was to have been sliced from the total by proration in two wells. And so was the increase, to follow through completion of two more of the last 10 test wells, to be cut three days after drilling into Wilcox pay, leaving the field then to take a natural decline, with comparatively little other initial oil until the drilling shotdown is to be lifted.

Activity in section 11-7-6, where there is a neutral spot between old, settled Little River and the restricted spot on the south, is the one possibility through which this field's production may be held, or even increased. No drilling restrictions are in force there, and new oil is showing fair strength. The gas head, however, is not there as was seen in the early life of Little River or the other five fields of Greater Seminole. An instance of this is Gypsy Oil Company's Renton 2, in the northeast of section 11, which immediately following completion was placed on air for lack of big natural recovery. The well Sunday flowed 820 barrels on air. Roxana's Ceasar 1, in the northwest of the southeast of the northeast of section 11, was drilling Monday at 4365 feet in lime. I. T. I. O.'s Lizzie 3, in the northwest of the southwest of the northwest of the same section, was down 4255 feet, and swabbed 11 barrels Sunday.

An interesting wildcat in township 7-6 is E. W. Whitney's Harjo 1, located in the northeast of the northwest of the northeast of section 25, which found Viola lime at 4260 feet, and which Monday was running 6⅝-inch casing at 4285 feet. The only remaining offset well in the South Little River district is Magnolia's Harjo 1, west offset to Snowden & McSweeney's Tiger 1 wildcat discovery. It was drilling at 3840 feet Monday.

Interest in the Earlsboro pool lies in the northeast edge, where Superior Oil Corporation and Skelly-Atlantic have the field's phenomenal producers. Superior's Walker 2 produced 4218 barrels Saturday and 4365 barrels Sunday, indicating somewhat of a settled flow. Skelly-Atlantic's Cherry 1, a half mile east extension to Northeast Earlsboro, produced 4401 barrels Saturday and 4117 barrels Sunday, still undergoing a fair decline. It is interesting to see the strength these two wells have lent to this rapidly declining field, which, without their completion, would have been nearing the 85,000 barrel level now. Activity around the big producers furthermore bid to add more life to this edge of Earlsboro. Superior had a rig up for Sango 2, in the northeast of section 1-9-5, and for Walker 3, in the northeast of 2-9-5. Burke-Greis et al had location staked May 21 for a well in the southwest of the northeast of section 6-9-6, offsetting Skelly-Atlantic's producer.

Guy R. Nicholson Heads National Scouts Association

Constructive papers read before Amarillo convention have been permanently bound for preservation by members

By GEORGE REID
Staff Representative

AMARILLO, Texas—Guy R. Nicholson, scout for Empire Gas & Fuel Company, in the Texas Panhandle, was elected president of the National Oil Scouts of America here Tuesday at the final business session of the fifth annual convention of the association, which opened Monday. He succeeds W. N. (Buddy) O'Roark, scout for the Standard Oil Company of Louisiana, Shreveport. Election of Nicholson was declared unanimous. Ford Turner, Pure Oil Company, San Antonio, was chosen first vice-president by acclamation. R. C. (Bob) Edwards, Gulf Refining Company, of Shreveport, was named second vice-president. John H. Langston, Sun Oil Company, Dallas, was re-elected secretary and treasurer for the coming year. For chairman of the executive committee the association chose R. T. Lutz, Humble Oil & Refining Company, Vernon, Texas, succeeding Ford Turner, who is now first vice-president.

Each of the new officers in their speeches of acceptance stressed the importance of continued co-operative and constructive work on the part of the association as a whole and expressed their gratitude as members of the organization to past officials for their untiring efforts which have been conducive to the rapid growth of the association.

The National Oil Scouts' Association conferred an honorary life membership upon Fred J. Hill, president of the Mid-Continent Oil Scouts and Land Men's Association. During the three business sessions of the association there was much discussion relative to the consolidation of the two scouts' organizations into one. President Hill of the Oklahoma organization promised to lend his influence toward the perfection of a plan which may bring about the combining of the two groups.

The annual banquet, which this year was a stag affair, was held in the crystal ballroom at the Hotel Herring Monday night. A special entertainment was provided for visiting ladies, which included a theatre party on Monday and a bridge luncheon the following afternoon. The annual golf tournament was held at Hillcrest Country Club after the business session Tuesday. Scouts were entertained Tuesday afternoon at the Sloan Kritser ranch on the Canadian river, when a barbecue dinner was served. Transportation to the ranch was provided by members of the Panhandle Geological Association.

The final event of the convention program was a ball at the Amarillo Country Club.

This convention of the association was the most constructive meeting that the organization has enjoyed. It was also the best attended convention, and the proceedings of the business sessions were most enthusiastically carried out.

The first business session of the fifth annual convention of National Oil Scouts' Association was opened Monday morning at 11 o'clock with President W. N. O'Roark presiding and J. H. Langston acting in capacity of secretary.

The address of welcome on behalf of the city of Amarillo was presented by Mr. Mayer, chairman of the City Board of Development, in the absence of Mayor Lee Bivins. Mr. Mayer is himself an oil man and a former scout and was acting in this capacity, he told the convention, some ten years ago, when the first gas well was completed in the area which was destined to become the present Panhandle producing district.

Mr. Mayer stressed the importance of the work of the oil scouts and spoke with the authority of experience and from the viewpoint of an observer watching the progress of years of development. He told the scouts that upon their careful selection of lands and leases and thorough understanding of local conditions in the territory being scouted, rested, to a large extent, the entire success of many petroleum producing organizations. Further, he stated that public opinion, which is a matter of greater importance than oil companies were perhaps prone to believe, was influenced to a large extent by the character of the men employed as scouts, since they are in the vanguard of the petroleum industry. He stated that Western Texas, and especially Amarillo, held the old scout in high esteem and that the public in this West Texas territory is always glad to see the scout, whether they come en-masse in convention or singly on business.

Fred J. Hill, scout for Mid-Continent Petroleum Corporation and president of the Mid-Continent Oil Scouts and Land Men's Association, was present as a visitor to the National Oil Scouts' Convention and as a delegate from his association. In a short talk before the session Mr. Hill conveyed the congratulations of his association and its best wishes for a profitable meeting. He extended an invitation to the National Scouts' group to be present at the next annual convention of the Mid-Continent Scouts' organization.

President O'Roark then called upon several of the members present for expressions which were of general interest to the association. J. H. Langston, secretary, then read letters and wires of congratulation from W. B. Sutton, Vacuum Oil Company, Houston; N. K. Moody, Prairie Oil & Gas Company, Independence, Kansas, and others, and a number of messages from other cities, including San Angelo, Texas, New Orleans, Philadelphia, Shreveport, Atlantic City and Miami, inviting the oil scouts to convene with them in 1929.

Papers presented at this year's convention were distributed in book form in permanent binding, to make for ease of filing of the important information compiled by the scouts' organization.

E. J. Raisch, Republic Production Company, Houston, in his paper, "The Work of an Oil Field Scout," said: "The most valuable asset that you can acquire through the use of common sense and intelligence is practical experience. There is absolutely no equivalent for it and nothing should induce you to cast it aside for a mere opinion. The oil business, at times, is subjected to the intrusion of phrase-making minds that accept, and wish every one else to accept as a practical fact, a phrase whose only merit lies in its literary glitter or polished euphony. We have such a phrase, for instance, in it is conceivable, we are informed in that ah-I-know-something-that-you-don't-know tone of voice, that though this well or field (or whatever it may happen to be) is doing so and so, conditions may arise which will result in this and that. But if your hard-won experience has taught you that under the given conditions the results were of a certain character then stay with your experience."

A general paper on "West Texas," compiled by nine scouts from nine companies operating in this territory, was presented in brief by G. E. Wimberly, Adams Royalty Company.

B. C. Selden, Pure Oil Company, interestingly discussed the history and

development of Spindle Top. An interesting and informative paper, "The Smackover Field," by Jack Doyle and J. W. Selby, was read in brief by the president.

The Cotton Valley oil and gas field was discussed in a paper by Jack Doyle, Humble Oil & Refining Company.

A. R. Kautz, Empire Gas & Fuel Company, and S. M. Semple, Prairie Oil & Gas Company, presented interesting data regarding the various fields in the Wichita Falls district of North Texas. North Central Texas, especially Cooke and the adjoining counties, was presented by R. H. Haselfine, Sun Oil Company. Panhandle developments during 1927-1928 were surveyed by G. R. Nicholson, Empire, and T. M. Martin, Pure Oil Company.

Southwest Texas was covered by G. C. Francisco, Jr., Sun Oil Company, and Ford Hubbard, The Texas Company, discussed the activity in 1927 in Brown, Coleman, Eastland and Callahan.

East Central Texas is covered in a paper by Ed L. Hogan, Prairie Oil & Gas Company.

"The Role of the Scout" was the subject of a very interesting paper by Howard S. Tullis, Humble Oil & Refining Company, who discussed the part of the scout and his activities in conjunction with the newer methods of locating oil structures by means of lately developed and scientific instruments, such as the torsion balance and the seismeograph.

Government of Colombia Enforcing Oil Law

Washington, D. C.—Enforcement of petroleum legislation which prohibits drilling for oil without governmental permit is being carried out in Colombia, according to a cable to the Department of Commerce from the American minister at Bogota. Colombian press items report a circular telegram from the Minister of Industry to governors and other officials definitely instructing them to carry out provisions of decree No. 150, which contains this prohibition. The telegram also calls the attention of notaries and magistrates to their duties under the decree, such as forwarding to the Minister of Industry all contracts for oil drilling made within the past 10 years, and adds that the minister is prepared to impose penalties for infractions.

The decree contains details for enforcement of Colombia's original petroleum law, which reserves to the government the ownership and the right of exploitation for petroleum on public lands. Although this original law was promulgated in November, 1927, and the decree regulating it in January, 1928, enforcement of both had presumably been withheld pending outcome of petitions to the government from oil concessionaries.

Hendrick Production Area Now Six Miles Long

SAN ANGELO—Extension of the Hendrick field more than one-half mile to the north late last week increased the length of this productive area to exactly six miles, with an averge width of slightly more than one mile. Murchison Oil Company and Cranfill Brothers Oil Company's Hendrick 1 "H," located on a five acre tract near the center of the northeast quarter of Section 33, provided the extension with a flow of fifty million cubic feet of gas and 720 barrels of oil through a one-inch choke from regular lime at 2820 to 2850 feet. Due to the heavy gas flow in this well, the owners have started work on killing same to drill deeper into the lime, and a large producer is expected. Eight-inch casing was cemented in the lime at 2405 feet, and the well drilled in with rotary.

This well is somewhat high on the lime. Cranfill and Reynolds' Hendrick 1 "D", located slightly more than a half-mile to the west, is running about 170 feet lower on the lime.

The latter test has cemented casing on top of lime at 2584 feet, with a surface elevation of 2862 feet. Murchison et al have a contract with American Petroleum Company to deliver crude, and in the event a big well is obtained on this five acre tract it is quite likely that the owners of the well will object to restricting production to the proration allowance.

Idle pipe line capacity out of the Hendrick field to distant car racks; refineries and trunk line junctions has followed the commission's order in restricting production to a maximum of 150,000 barrels daily, and a number of operators are insisting that the production be increased twenty-five or fifty thousand barrels more daily.

A move in this direction will overcome some of the objections of operators, especially those that are not being allowed to produce their crude contract requirements. Although private lines are available to transport this oil to distant racks and load same in buyers' tank cars.

Gibson-Johnson et al's wildcat well on the Leck-Daugherty land, located on the Llano structure and about nine miles northwest of the Hendrick field, was meeting with partial success in producing some pipeline oil along with the heavy volume of gas and water. This well was reported last week as having come in at 3167 feet with an undetermined production, and when given a test May 16 made about 98 per cent water.

The owners have been experimenting with various sized chokes, and were recovering about 800 barrels of oil with six to eight thousand barrels of fluid daily, according to last reports. The well was drilled into water before testing and an effort will be made to plug back, although the heavy gas flow makes it a difficult task.

Another oil producing structure for Winkler County is in prospect about ten miles to the southeast of the Hendrick field, as Danciger Oil & Refining Company et al's wildcast test on the John Sealy land is showing live oil with sulphur water in the hole from lime at 3195-3240 feet. This test is located in the southwest corner of the northeast quarter of Section 93, block "A", GMMB&A Survey, and less than two miles west of a dry hole drilled by F. P. Zoch and Marland Production Company. Danciger's test logged the top of the salt at 1085 feet, and the top of the big lime at 3115 feet. It is credited with having about 1500 feet of fluid in the hole, including several hundred feet of live oil, and casing is being set at 3240 feet to deepen. The log of this test is proving the existence of a lime high, centering to the west, and the showing of oil is much greater than that encountered in the Zoch test. Gulf Production Company has more than 20 sections of land under lease to the west of this wildcat.

The California Company's University 4, a south offset to Skelly Oil Company et al's wildcat pumper in Southern Reagan County, is showing for a small producer and will be pumped. The well logged lime at 3093-98 and 3102-06 feet, having topped the big lime at 3030 feet, with a surface elevation of 2895 feet, and bailed 25 barrels of oil with a small quantity of water during first 21 hours. Skelly's second test in this area proved a failure at 3158 feet, and a nearby test by Marland also missed the oil pay.

Tulsa.—John M. Lovejoy has resigned as vice president, general manager and director of Amerada Petroleum Corporation to become president of own company being formed in conjunction with W. A. Harriman and Company of New York. He will be succeeded by Allmond M. Blow, formerly head of Amerada's land department.

P. O. Davant, oil well supplies salesman of Houston, has moved his office to 3220 Franklin Street, in order to stock the MacClatchie products. He is Houston representative of the Beaumont Well Works Company, and has been appointed representative of the Stewart R. Browne Manufacturing Company, manufacturers of the Tuffite products for refineries and pipe lines, and distributors for the MacClatchie Manufacturing Company of Compton, California.

Long Beach Production Raised to 190,000 Barrels

Shell Company completes Brown 1 at 7503 feet, as the deepest commercial producer making 1700 barrels; Ventura proration committee resets yield

By BRAD MILLS
Staff Representative

LOS ANGELES — After a short breathing spell, the Long Beach field has again hit its stride, pushing production to 190,000 barrels for the first time since the original boom days of 1923. Eight new wells and three recompletions, plus the addition of two good wells that had been off production for some time and a 1500-barrel increase from another well, offset the natural decline, with 10,000 barrels to spare. The average initial production of the completions was about 1500 barrels, a somewhat smaller average than during previous weeks, but this loss was caused by two small recompletions which are not representative producers.

Breaking all field records, the Shell Company has successfully completed Brown 1 at 7503 feet. The well is the deepest producer in the world and only one commercial well has ever been completed at a greater depth. Initial production was 1700 barrels of 31 gravity oil and 2,000,000 cubic feet of wet gas, the oil showing only a small cut. The well was completed 98 days after it was spudded, but only 75 days were consumed in actual drilling. Few wells have ever been drilled to such a depth and no one has ever approached this speed record.

Richfield's Denni 6, recently completed as a 1100-barrel producer at 7401 feet, has increased its yield to 2200 barrels, following removal of the 2½-inch tubing from the hole. The company was not satisfied with the action of the well and started for the bottom of the trouble. After the tubing was pulled, the well started flowing through the 5¾-inch casing at a satisfactory rate, indicating that the former arrangement had had a choking effect on production. Although it was originally intended to rerun the tubing, such a step will not be taken under present conditions. The pressure has been very high and several beans have been cut out entirely. The action of the Richfield well may change the method of running tubing in exceptionally deep completions.

Flowing hot salt water at the rate of 120 barrels per hour, the California Eastern Oil Company's Marine 28A failed entirely when placed on a production test at 6494 feet. The well is located near some of the early completions which were the largest ever completed in the deep zone and it is believed that the water shutoff at 5370 feet was defective.

George F. Getty's No. 25, completed at 6776 feet with an initial production of 2700 barrels, was one of the best wells of the week. The oil was 31 gravity and cut only 1.5 per cent.

The California Petroleum Corporation completed Brown 3 and Davidson 8, but both wells showed cuts far above the average. The former was a 1200-barrel well at 6369 feet and the latter came in at 6696 feet with an initial production of 2100 barrels. Oil from Brown 3 was 29.1 gravity and showed a cut of 11 per cent., while that from Davidson 8 was 28.4 gravity with a cut of 27 per cent. Production from both wells is expected to clean up rapidly.

The Sovereign Oil Company broke into the production column with the completion of No. 1, which came in with an initial yield of 2600 barrels from 6315 feet. The oil was 28 gravity and cut 10 per cent.

The Belleview Oil Company and the California Eastern Oil Company each got a 500-barrel completion during the week, the former's No. 1 and the latter's Campbell 1 having been completed at 6262 and 6232 feet, respectively. The Belleview completion was not very satisfactory, showing a cut of 20 per cent. Campbell 1 made a slightly better showing with a 26.1 gravity oil, cutting 5 per cent.

Jergins Municipal Trust continued its success in the field with the completion of No. 22 as a 1000-barrel well from 6696 feet. The oil was 28 gravity and cut about 5 per cent.

Of the three wells recompleted in the deep zone during the week, one was a good producer, one was a small well and another was a virtual failure. They were the Umpire Oil Company's Grimm 38, recompleted at 6024 feet with an initial production of 2200 barrels, Superior Oil Company's Swaffield 2, a 400-barrel completion at 7040 feet, and V. R. G. Wilbur's Bergstrom 1, recompleted as a 250-barrel producer from 6484 feet. The Umpire well showed a gravity of 28.5 and a cut of 10 per cent., Superior's Swaffield 2, a gravity of 29.4 and a negligible cut, while the Wilbur recompletion showed a cut of 75 per cent., with the gravity not available.

The week's completions showed a high initial cut but later reports revealed that in most instances production had cleaned up at the end of the third day. The cut taken during the first day is hardly fair to the well, since rotary mud and fresh water account for the greater part of it.

Production from the deep zone has reached 124,000 barrels, 102 wells contributing to the total. An average production of 1200 barrels per well is considered remarkable, many of the wells having been completed four months ago.

Ventura Proration

The Ventura Engineering Committee, working under the direction of the general committee appointed to conserve both gas and oil in California, has met and again prorated the output of the Ventura field. It was agreed in the beginning that the committee would meet from time to time to keep the Ventura production a full 20 per cent. below the maximum yield of the field. It was further agreed that all wells completed would be produced for 30 days as the operator sees fit. Several wells have been completed since the original 20 per cent. reduction and these have also been prorated to 80 per cent. of their capacity. The new proration will shut in an additional 5260 barrels, divided among the Associated, Shell, General Petroleum and Pan-American. Production from the older wells, when kept at 80 per cent. of their maximum production of a certain time in the past, gradually approaches the maximum production of some future date. The committee will meet from time to time to reduce the production. The new curtailment will save from 15 to 30 million cubic feet of gas.

Completion of a 1000-barrel well in the extreme southeastern edge of the Huntington Beach townsite area by the Paull and Collier interests is the most significant development in this area for several months. At least three wells will be drilled on the strength of the discovery and others will be started if subsequent tests prove successful. The well was completed at 4160 feet in what would be the intermediate zone in the center of the field.

With the completion of Padelford 4 at 5046 feet, the Union Oil Company has opened up a new producing zone in the southern part of the field. The well is producing 41 gravity oil at the rate of 500 barrels. With the exception of the Patrero field, the Rosecrans area produces the highest gravity oil found in the Los Angeles Basin.

Producing steadily at the rate of 800 barrels, the Associated's Cypress 2 has placed Potrero on the oil map to stay. The oil tests about 47 gravity and shows a very small cut. Gas production is 1,400,000 cubic feet, with a gasoline content of about three and one-half gallons per thou-

sand. The company is erecting a portable gasoline plant on the lease.

The possibility of an extension to the Seal Beach field has been at least temporarily removed by the abandonment of George F. Getty's Townsite 15, which was located between the main field and the ocean. The well was drilled to 5818 feet but failed to pick up the zones found productive a short distance north.

The Pacific Eastern Production Company has cemented a string of 10-inch casing at 3822 feet in No. 2, the second test in the Fruitvale field, having found the oil sand about 13 feet higher than in the discovery well. Total depth is 3838 feet, giving the well only 16 feet of sand. No. 3 is drilling at 3750 feet and will soon encounter the oil zone. The discovery well is being pumped only half the time, but production is running almost as high as before the curtailment.

A dozen completions in the upper zone have about convinced operators in the Rincon field that the chances of developing a large production between 2600 and 3200 feet are very slim. Starting with much promise, the zone has, on the whole, been disappointing. The discovery well opened several hundred feet of sand and was expected to be a large producer when a satisfactory water shut-off was effected. After several unsuccessful attempts to include all of the zone between the water shut-off and the bottom of the hole, only small parts were included during later tests. The first well completed between 3100 and 3200 feet was a success but production declined rapidly. Since the initial completion, a half dozen wells have been finished in the 50 feet of sand found to be free from water. The Chanslor-Canfield Midway Oil Company's Hobson C-1, the most recent completion, is producing only 150 barrels of oil. The Southern Pacific Land Company has completed No. 1 with an initial production of 325 barrels from 3150 feet. An attempt was made to complete the well around 2600 feet, but the discovery of a better zone on an adjoining lease prompted deeper drilling. The oil was clean but production has declined to 250 barrels. It was the first completion by the Standard, which holds a lease on the Southern Pacific right-of-way, extending the full length of the field. The Miley Oil Company has reached 4676 feet in Hobson 1, regarded as the critical test of the field. The formation is oil sand and shale, running about six inches of the former to one foot of the latter. It is the company's intention to test the first promising zone encountered. This well has had a rather hectic history since it was started several months ago. Production was expected above 3000 feet, but unfavorable developments at various depths in neighboring wells have kept the well drilling for something better. The virtual failure of the Pan-American's State 2 at 3955 feet made it necessary for Miley to seek laurels below 4000 feet. No large breaks have been found between 2800 and 4676 feet, but the percentage of oil sand to shale was considerably below the requirements for large production. A study of the log of the well reveals that it is not practical to include a large portion of the zone, such as is practiced in Ventura or Long Beach.

The Associated Oil Company is drilling ahead at 7630 feet in Lloyd 100, the deepest well ever drilled in the Ventura field, and potentially the deepest producer in the world. The formation is still oil sand and shale, giving the well more than 2000 feet of penetration. The last casing, a string of 13⅜-inch, was cemented at 3893 feet. The Shell Company's Gosnell 25 has been completed with an initial production of 1100 barrels from 6925 feet. The oil is showing a cut of 15 per cent., but is expected to clean up during the first week. The M. K. and T. Oil Company's No. 1, regarded as an important test of a possible extension a few hundred feet southwest of the present producing limits of the field, failed to produce on a recent test. The well was drilled to 4995 feet, a string of 11¾-inch casing cemented at 4605 feet and a 6⅝-inch string run to 4880 feet for good measure. When the swab was run, the well showed water and a small quantity of gas and oil.

Recent completion of a 900-barrel well in the Round Mountain field has created a new interest in the district. The Shell Company, already a small producer in the field, will drill at least one well east of the present producing line. The General Petroleum Corporation is rigging a rotary outfit on section 30-28-29, a short distance southwest of the discovery well. Shell Company has also located another well on the Jewett property, section 29-28-29.

The settled fields of Kern County are showing the effects of the recent shutdown movement, with the chief interest centering around tests intended to extend the present producing limits or to develop deeper sands. In the Midway field, the Chanslor-Canfield Midway Oil Company's No. 29, section 8-32-23, will be completed at 2660 feet, and about 50 feet shallower than the Republic Petroleum Company's No. 25, which is still flowing 1100 barrels of clean oil. The deep sand in this district was discovered after the shallow wells had produced for more than 15 years. Union's McCloud 14, section 34-31-23, has been completed as a typical Midway well, initial production having been 75 barrels from 3325 feet. The Ohio Oil Company has acquired a 160-acre lease on section 8-30-22, in the McKittrick area, and has already started its first well. The Standard Oil Company has completed No. 33, section 27-11-20, in the Wheeler Ridge field, practically closing its development work in this area. Initial production was 110 barrels from 2800 feet. Drilling operations would have been suspended entirely in this field had not the terms of the leases been so stringent.

Long Gas Pipe Line Built Across Oklahoma-Kansas During Year

ONE of the leading natural gas pipe line construction projects of the past year in Oklahoma and Kansas was the 20-inch main from Pampa, Texas, to Wichita, Kansas. This line, 267 miles long, has the most of its distance through Oklahoma and Kansas. This line is due to be extended from Wichita to Kansas City.

Trunk line gas main construction in Oklahoma amounted to about 550 miles in 1927.

Part of the Lone Star Gas Company line from the Texas Panhandle to Fort Worth and Dallas passes through a section of Western Oklahoma. In Oklahoma the Lone Star Gas Company built 40 miles of 16-inch main from the Chickasha district to Purcell, where it ties into the system serving cities in North Texas. This company also provided a transportation system to serve Sulphur, Davis, Purcell, Wynnewood, Lexington, Elmore City, Wayne and Paoli. Other lines were laid to supply Tipton, Marietta, Waurika and other cities. These construction projects required more than 100 miles of gas mains.

The Oklahoma Natural Gas Corporation was one of the foremost builders of gas trunk lines during the year. Through purchase of the gas distributing systems of the Oklahoma Gas & Electric Company early in 1928, it took over the natural gas supply for Oklahoma City, Shawnee, Enid, Yukon, Bethany, Brittan, El Reno, Muskogee, Norman, Ardmore, Healdton, Wilson, Ringling and Oil City.

The company extended several transportation and feeder lines from Seminole, Hughes County and the Chickasha fields. A 16-inch main from Chickasha to Oklahoma City, 35 miles long, was laid to parallel a previous 12-inch main.

The Allen Pipe Line Company laid a 12-inch gas main from the Allen pool to Ada. This line is 25 miles long.

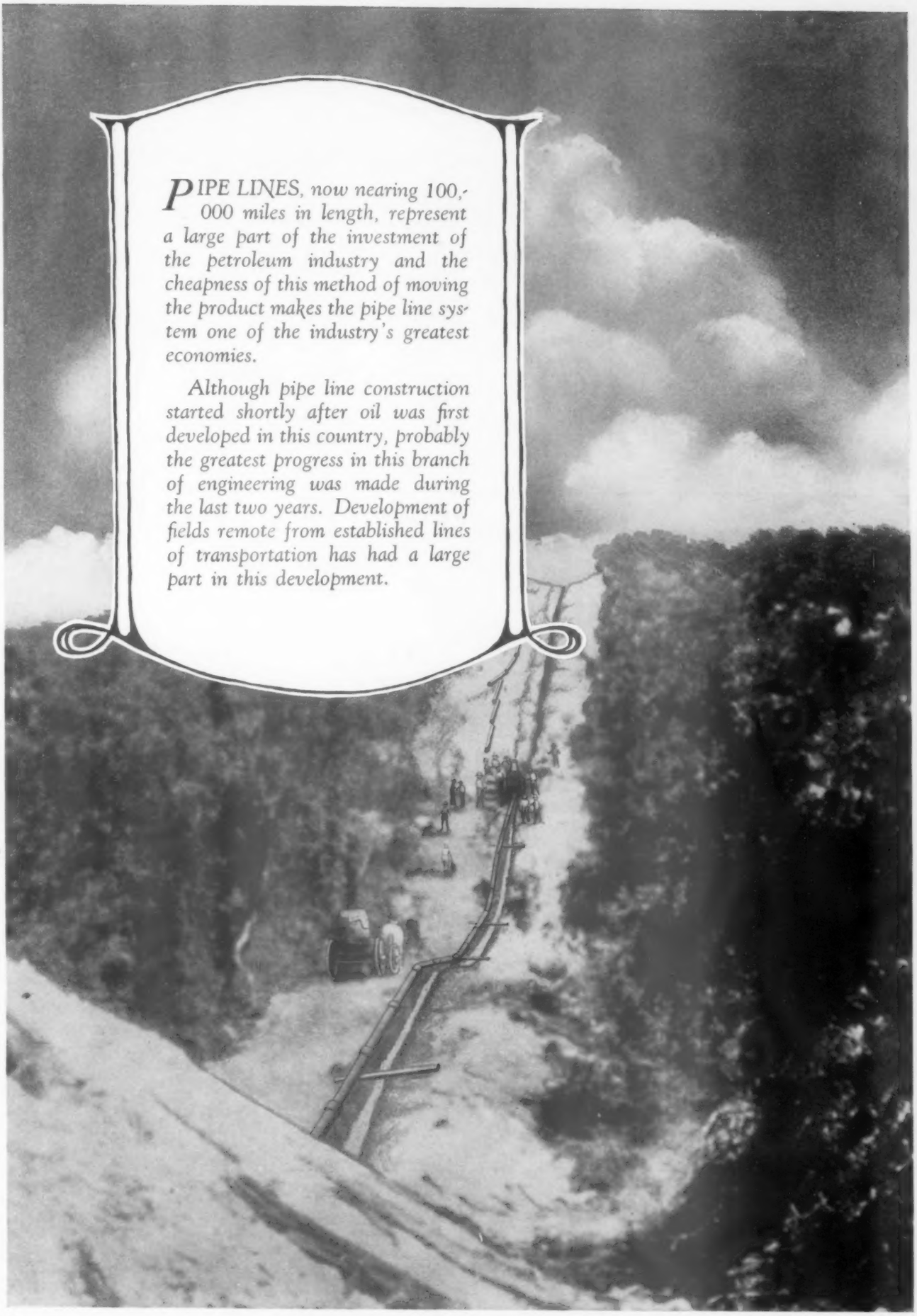
A line 16 miles long was built from the Cain field to Muskogee by the Municipal Gas Company to serve the municipal enterprises of Muskogee.

The Southwestern Light and Power Company laid a second six-inch main from the Chickasha field into the city of Chickasha. This company also laid a 10-inch line from the Chickasha field to serve Duncan, Marlow and Comanche.

The Southwest Power Company of McAlester placed an eight-inch line from the Gains Creek field to serve McAlester.

The Midwest Gas Company placed a 10-inch line, 20 miles long, from the Chickasha field to Fort Sill.

The Oklahoma Northern Utilities Company laid an eight-inch line to the Deer Creek field to connect with its associated concern, the Deer Creek Pipe Line Company.


PIPE LINES, now nearing 100,000 miles in length, represent a large part of the investment of the petroleum industry and the cheapness of this method of moving the product makes the pipe line system one of the industry's greatest economies.
Although pipe line construction started shortly after oil was first developed in this country, probably the greatest progress in this branch of engineering was made during the last two years. Development of fields remote from established lines of transportation has had a large part in this development.

West Texas Has 200,000 Barrel Pipe Line Outlet

Reserve in storage, with fields supplying current capacity, insures lines built and building long continued use

By H. H. KING
Staff Representative

FORT WORTH, TEXAS.—Flush production in the West Texas district has been directly responsible for the bulk of the new pipe work carried out in the Southwest within the past year or two, and within a month will have trunk line facilities to handle in excess of 200,000 barrels of oil daily. Current pipe line runs from this district, except those made to local refineries, tank farms and tank car racks, ranges from 140,000 to 150,000 barrels daily, and approximately 50,000 barrels of additional capacity will be available late in June by the completion of the Pasotex Pipe Line Company's eight-inch line from the Hendrick field to El Paso, and the Shell Pipe Line Company's 10-inch extension from its Mid-Continent system to McCamey.

Trunk lines serving the West Texas district as a whole have a greater reserve supply of oil in sight than any other district in the Southwest, owing to the fact that the former district has 26,518,475 barrels of oil in storage, or about 133 days of full time operation, without accepting more oil. The trunk line outlet in operation and nearing completion balances with the total allowable production of the Hendrick and Yates fields combined, while these two fields are known to be capable of producing several times the volume that is being allowed under proration plans.

The Shell Pipe Line Company's extension from Southern Oklahoma to McCamey is the last big pipe line outlet started for the West Texas district and is rated good for 35,000 barrels daily when its 14 inch main line stations are put in operation. It is practically completed, except for a few small stretches that were skipped pending the arrival from Europe of a special type of elastic pipe to cope with bad lands in parts of North Texas and Southern Oklahoma. This line terminates at Roxana's tank farm at McCamey, and is to be served with six-inch lateral lines connected to the various fields in Upton, Crane, Pecos and Winkler Counties.

Line to El Paso

The Pasotex Pipe Line Company, subsidiary of Standard of California, is scheduled to complete its eight-inch welded line from the Hendrick field to El Paso, where it will supply West Texas crude to the Pasotex Petroleum Company's new 10,000 barrel refinery, within a month. This line is about 195 miles in length, and has three Diesel engine stations and one motor driven. Six 80,000 barrel steel tanks have been erected at the El Paso plant to permit delivery of crude prior to the completion of the refinery on or before July 15, 1928. The refinery will probably be enlarged upon the completion of the first unit.

Skelly Oil Company and the Burford Oil Company are building a joint crude line from the former concern's proven leases in the Hendrick field to Pecos, a distance of about 40 miles. This line is made up of six-inch pipe, and is scheduled to be ready for use about June 1. It will serve the Burford Oil Company's 5000 barrel skimming and cracking plant, which is now under construction at Pecos, and the surplus crude will be shipped out in tank cars over the Santa Fe Railroad to Skelly Oil Company's refinery at El Dorado, Kansas. This is the last line given the Hendrick field, although the general area may command more pipe lines for movement of crude to distant marketing centers and to local tank car racks with the development of the flush area recently established in North Winkler County, and across the State line into New Mexico.

Humble Pipe Line Company is adding new eight-inch loops on the Crane County section of its Hendrick field-McCamey district unit to bring the capacity of this carrier to about 40,000 barrels daily. Humble has also added more capacity to its Kemper-Ingleside trunk line system to the south of Lytle station to take on Yates field crude to be delivered as far as Lytle station by the Illinois Pipe Line Company. The latter concern is adding eight-inch loops on its Yates field-Lytle line between the field and Del Rio, and when this work is completed will be in position to deliver 20,000 barrels of crude daily to Humble.

Jones County Line

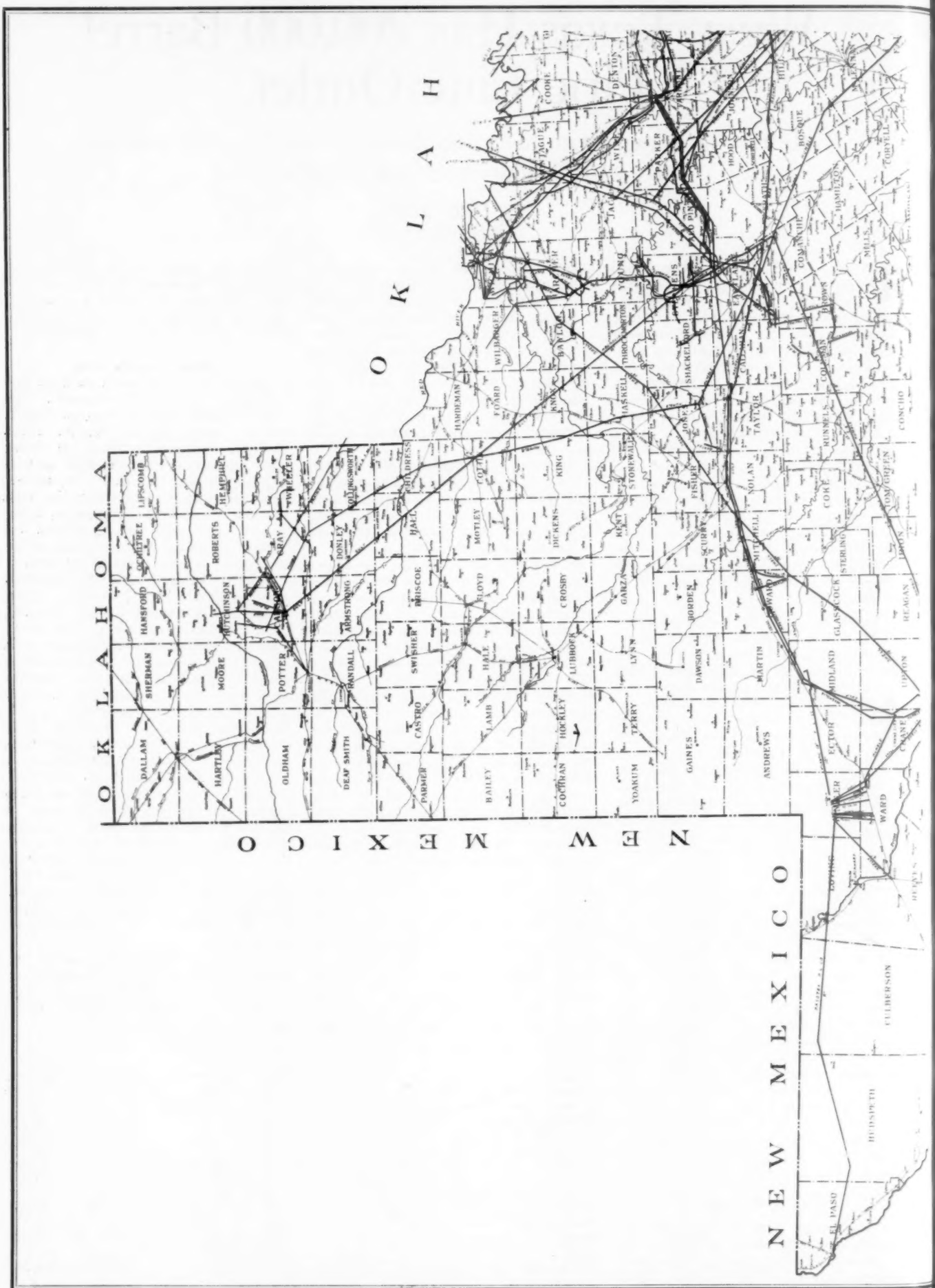
Humble is also at work on a six-inch extension from its Panhandle-Comyn 10-inch trunk line at Hawley station, Jones County, to the Noodle Creek field, a distance of about 16 miles, This line will provide the field with its first direct pipe line outlet, as heretofore, the current production has been handled via Phillips Petroleum Company's small field line to a tank car rack at Trent for rail movement to independent refiners within the State.

Within the past year the Hendrick field has attracted 12 separate crude lines, with a combined daily capacity of 264,000 barrels, but only three of the concerns listed below will connect with trunk lines. Atlantic's line, which is rated at 50,000 barrels daily, connects with Magnolia's trunk line at Midland, and handles all oil produced by Atlantic Oil Producing Company, Pure Oil Company and Magnolia Petroleum Company. However, Magnolia can not accomodate one-half of these deliveries, so the surplus is put into steel tankage at Midland pending room in the trunk line to the Coast. Humble is building its Hendrick field line capacity to 40,000 barrels daily, but does not have space in its trunk lines leading out of McCamey district to handle this volume of Hendrick crude without storing contracted oil in other West Texas fields.

The various lines leading out of the Hendrick field to tank car racks, West Texas refineries and to connect with trunk lines operated by Humble, Shell, and Magnolia follows:

Carriers	Line	Destination	Daily Capacity
Atlantic Pipe Line Co.	10	Midland	50,000
Roxana Petroleum Corp.	6	Monahans	25,000
Roxana Petroleum Corp.	6	McCamey	12,000
Southern P. L. Co., (two)	6	Wickett	40,000
Independent O. & G. Co.	8	Pyote	20,000
Landreth Production Corp.	6	Monahans	23,000
American Petroleum Co.	6	Pyote	15,000
Texon Oil & Land Co.	6	Pyote	12,000
Humble P. L. Co.	*8	Gulf Coast	40,000
Pasotex Pipe Line Co.	8	El Paso	15,000
Skelly Oil Company	6	Pecos	12,000
Totals			264,000

*Looped with some eight and 10-inch pipe.


OKLAHOMA
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OKLAHOMA
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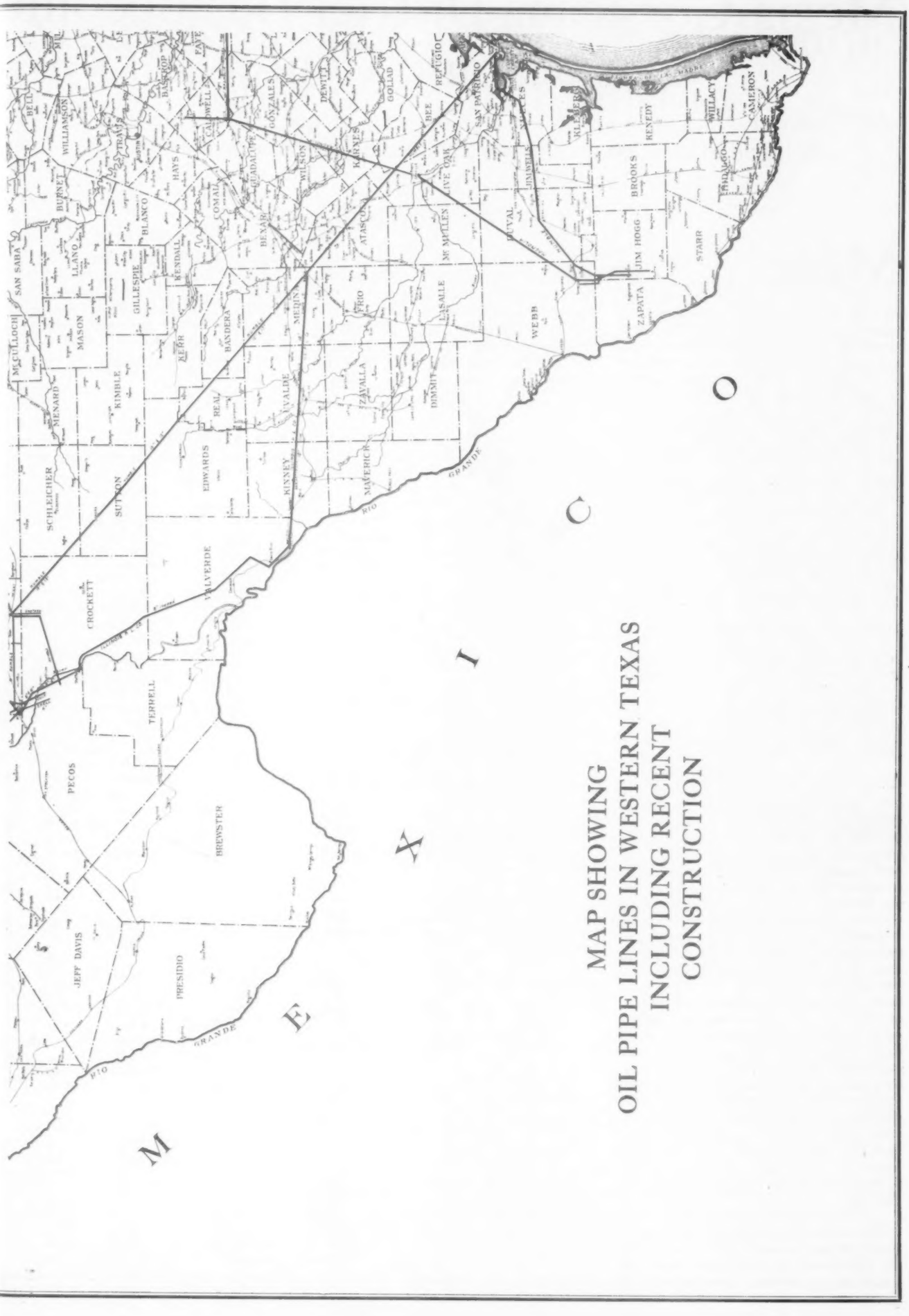
DALLAM
SHERMAN
HARTLEY
OLDHAM
DEAF SMITH
PARMER
CASTRO
SWISHER
BRISCOE
HALL
CHILDRESS
HARDEMAN
FOARD
KNOX
BAYLOR
WILBARGER
ARCHER
YOUNG
THROCKMORTON
JACK
WISE
PARKER
HOOD
JOHNSON
COOKE
DENTON
TARRANT
ERATH
BOSQUE
HAMILTON
COMANCHE
MILLS
CORYELL
HASKELL
STONEWALL
JONES
SHACKELFORD
TAYLOR
CALLAHAN
EASTLAND
BROWN
COLEMAN
RUNNELS
CONCHO
TOM GREEN
IRION
REAGAN
UPTON
GLASSCOCK
STERLING
MIDLAND
ECTOR
WARD
CRANE
LOVING
REEVES
CULBERSON
HUDSPETH
EL PASO
ANDREWS
MARTIN
HOWARD
MITCHELL
NOLAN
FISHER
KENT
SCURRY
BORDEN
DAWSON
GAINES
YOAKUM
TERRY
LYNN
GARZA
CROSBY
DICKENS
KING
MOTLEY
FLOYD
HALE
LUBBOCK
HOCKLEY
COCHRAN
LAMB
BAILEY
DONLEY
COLLINGSWORTH
ARMSTRONG
RANDALL
POTTER
CARSON
GRAY
WHEELER
ROBERTS
HEMPHILL
OCHILTREE
LIPSCOMB
HANSFORD
HUTCHINSON
MOORE



MAP SHOWING
OIL PIPE LINES IN WESTERN TEXAS
INCLUDING RECENT
CONSTRUCTION

Mexia-Corsicana District Has Become Big Storage Center

Surplus tankage remaining after decline of big flush in that area being used for storage of transported oil; six major lines through area

By H. H. KING
Staff Representative

MEXIA, Texas.—Six major trunk line systems converge in the Mexia-Corsicana district, East Central Texas, in transporting crude from the various fields in the Mid-Continent and West Texas districts to the Gulf Coast, thus giving the area a greater pipe line outlet than any other single section in the Southwest. The combined capacity of these six trunk line systems from the Mexia-Corsicana district to the Gulf Coast is estimated at 359,000 barrels daily, and each line is operating at capacity, except Humble Pipe Line Company's system, which is a stub line extending from the main line at Hearne station.

The Mexia-Corsicana district is now a comparatively small source of supply for these trunk line systems, current production being less than 23,000 barrels daily, but the flush production offered during the early development of the Mexia, Corsicana-Powell and Wortham fields attracted most of the pipe line capacity.

Magnolia Pipe Line Company is routing the greatest volume of crude via the Mexia-Corsicana district, and only recently completed a 10-inch line parallel to the original system extending from Corsicana to Beaumont to boost the daily capacity between the latter two points to about 110,000 barrels daily. All of Magnolia's crude runs from the Mid-Continent, Texas Panhandle and West Texas districts pass through the Corsicana station, and this system has been inadequate for the traffic scheduled for many months, owing to heavy crude production and outside purchases by Magnolia Petroleum Company, and the common carrier oil being handled for Atlantic Oil Producing Company and Pure Oil Company.

Humble Pipe Line Company's transportation facilities out of the Mexia-Corsicana district were increased to above 100,000 barrels daily when big production broke loose in the Corsicana-Powell field in 1923, and after the production decline set in on this field and Wortham staged its brief flood of oil, heavy runs were maintained by pulling on storage. Humble's runs out of this district during April only averaged 21,000 barrels daily, and withdrawals from storage were made to reach this mark. However, Humble's main line systems out of North and West Texas are operating at top capacity, with some oil going into storage in the latter district.

Texas Company Plans Loop

The Texas Pipe Line Company routes all of the oil produced and purchased in the Mid-Continent, except for that consumed by its interior refineries, via the Corsicana station in reaching Port Arthur and has a separate line coming out of the Arkansas-Louisiana and Gulf Coast districts. The Texas Pipe Line Company's capacity to the south of the Corsicana-Mexia district is now about 50,000 barrels daily, and considerably below current requirements, with the result that large quantities of crude has been backed up in private and leased storage tanks. Preliminary work is now under way for Texas to lay an eight-inch line from the Corsicana-Mexia district to San Augustine station, East Texas, and make connection with the Arkansas-Port Arthur system.

(Continued on page 96)

MEXIA-CORSICANA STORAGE

Identity of the various crudes now in storage in the Mexia-Corsicana district, East Central Texas, is made below by companies:

Company—	Total Barrels	Field source of Crude
Magnolia Petroleum Company	914,470	Texas Panhandle
Magnolia Petroleum Company	716,500	West Texas
Magnolia Petroleum Company	580,425	Electra-Cushing
Magnolia Petroleum Company	113,275	Cushing
Magnolia Petroleum Company	114,350	Healdton
Magnolia Petroleum Company	15,200	Wewoka
Magnolia Petroleum Company	12,490	Corsicana-Powell
Pure Oil P. L. Company	2,078,100	Ranger
Pure Oil P. L. Company	18,925	Mexia
Texas Pipe Line Company	929,560	Mexia-Corsicana
Texas Pipe Line Company	424,425	North Texas
Prairie Pipe Line Company	622,900	Mexia-Corsicana
Prairie Pipe Line Company	579,400	Texas Panhandle
Simms Oil Company	722,750	Mexia-Corsicana
Sinclair Pipe Line Company	469,800	Mexia-Corsicana
Gulf Production Company	463,375	West Texas
Gulf Production Company	117,500	Mexia-Corsicana
Humble Oil & Refining Company	289,750	Mexia-Corsicana
Humble Oil & Refining Company	15,775	Ranger
Atlantic Oil Producing Company	199,025	West Texas
Atlantic Oil Producing Company	53,625	Mexia-Corsicana
Tidal Oil Company	233,100	Corsicana-Seminole
Skelly Oil Company	53,530	Corsicana-Powell
Kent-Middleton Refining Company	4,925	Corsicana-Powell
Total	9,743,155	

Crude storage facilities in the Corsicana-Powell and Mexia districts on May 1, 1928, are listed by companies, with total crude stocks for each company:

Company—	Corsicana-Powell steel tankage in barrels	Corsicana-Powell crude stocks in barrels	Mexia steel tankage in barrels	Mexia crude stocks in barrels
Atlantic Oil Producing Co.	539,000	225,750	324,000	26,900
Galena-Signal Oil Company	.....	.....	540,000	.....
Gulf Production Company	.....	.....	1,080,000	580,875
Humble Oil & Refining Co.	468,000	20,700	1,782,000	284,825
Kent-Middleton Ref. Co.	108,000	4,925	.....	.....
Magnolia Petroleum Co.	972,000	921,900	1,566,000	1,544,825
Prairie Pipe Line Company	.....	.....	1,425,000	1,202,300
Pure Oil Company	.....	.....	2,970,000	.....
Pure Oil P. L. Company	.....	.....	2,592,000	2,096,975
Simms Oil Company	162,000	78,275	702,000	644,475
Sinclair Pipe Line Company	378,000	.....	5,826,000	469,800
Skelly Oil Company	108,000	53,530	.....	.....
Texas Pipe Line Company	926,000	877,850	540,000	476,150
Tidal Oil Company	502,000	233,100	.....	.....
Total	4,163,000	2,416,030	19,347,000	7,327,125

Multiple Small Lines Built to Handle Seminole Flush Output

Recent oil pipe line construction in Oklahoma included short lines to serve flush area; small pipe used with view of salvage

By GRADY TRIPLETT

PIPE line construction in Oklahoma in the past year has been devoted largely to handling the output of the Greater Seminole area. This has consisted chiefly of building systems for transporting the output of that district to existing trunk pipe line stations and to new or existing tank farms.

This work has for the above reason not been of the major trunk line type. The capacity of the Seminole system is, however, of importance due to the amount of oil that can be handled despite the fact that the systems are not long in miles.

A significant phase of pipe line building for Seminole was the policy of laying several small lines, rather than a few lines of large capacity. This policy was no doubt adopted for the purpose of being able later to take up part of the new systems and still leave ample capacity for handling the settled output of the area.

A survey of Seminole transportation shows the wisdom of such a policy. The tabulation below shows the capacity of each pipe line system out of Seminole, as well as average runs at present:

Company—	Seminole capacity	Present runs
Barnsdall Oil Corp.....	18,000	8,500
Champlin Refining Co...	12,500	500
Consolidated Pipe Line Co.	3,500	1,000
Mid-Continent Petroleum Corp.	22,000	5,500
Empire Pipe Line Co...	55,000	10,000
Gulf Pipe Line Co.....	32,000	25,000
Independent Oil & Gas Co.	3,500	.....
Magnolia Petroleum Co.	55,000	40,000
Oklahoma Pipe Line Co.	100,000	41,500
Shell Pipe Line Co. ...	35,000	13,000
Prairie Pipe Line Co. ...	82,000	50,000
Pure Oil Co.	12,000	2,500
Shaffer Oil & Refining Co.	12,000	3,250
Sinclair Pipe Line Co...	60,000	31,500
Sapulpa Refining Co....	5,000	.....
Texas Pipe Line Co....	25,000	5,000
Tidal Oil Co.	9,000	1,500
White Oak Refining Co.	2,500	.....

The column of present runs is only an estimate, as actual runs from the Seminole field vary from day to day. The oil not being run from the area, is being stored in the field, which has been provided with ample storage.

The fact, however, that present Seminole runs are much lower than the total capacity of pipe lines and the further fact that pipe line capacity is also greater than Greater Seminole production, indicates that part of the Seminole pipe line system will be available for transfer to other flush production areas as needed.

Very little oil is now moving out of Seminole by tank cars. Several loading racks were built in the early days of the high production, when pipe line capacity was below production requirements.

Shell Line

The major trunk pipe line venture for Oklahoma for the year was the Mid-Continent part of the Shell Pipe Line Company system from West Texas to Hammond, Indiana. Part of the new 10-inch line from McCamey, Texas, northward passed through Oklahoma, ending at Cushing, the chief division point for the carrying section of the Roxana Petroleum Corporation. In addition to this part of the new trunk system, a section of 128 miles of old six-inch line between Healdton and Cushing was removed from the ground and reconditioned last year.

From Cushing, northeast to St. Louis, the old 10-inch line of the Shell system has been looped and the work is now near completion. Between St. Louis and Hammond, 70 miles of the 10-inch trunk has been looped.

This whole system will give the Shell Pipe Line Company daily capacity of 35,000 barrels daily. The line will extend from McCamey, Texas, to Hammond, Indiana, 1159 miles. Three refineries, Arkansas City, Kansas, Wood River, Illinois, and Hammond, Indiana, will be served by this enlarged system.

Although the work was not started in the past year, the trunk lateral of the Prairie Pipe Line Company from the Texas Panhandle district to the main trunk system at Healdton, Oklahoma, was completed and crude was started through it in June, 1927. This is an eight-inch trunk from the Kings Mill, Texas, station to Ringling, Oklahoma. At Ringling the line ties into the several Prairie trunks out of Texas northward.

Through purchases and construction, the Champlin Refining Company has added a line from Henryetta to Enid, Oklahoma, 130 miles. From Watchorn, Oklahoma, Champlin built 54 miles of six-inch line, to connect with 40 miles of six-inch line, bought from The Texas Company. This gave Champlin connection with Seminole. Then Champlin bought 36 miles of four-inch line from Seminole northeast to Henryetta.

Previously Champlin had a six-inch line, 52 miles, from Enid to Watchorn.

Another Champlin line was built from the new producing area of Logan County to Enid.

The Bolene Refining Company also has a four-inch line from production in township 18, range 4 west, Logan County, to its refinery at Enid.

The Shell Pipe Line Company has built a four-inch line from Roxana production in township 19, range 4 west, Logan County, to connect with the six-inch line from Garber to Cushing.

Another instance of pipe line construction resulting from Seminole development is the 10-inch line of the Empire Pipe Line Company from the Seminole area to Cushing, Oklahoma.

The Texas Pipe Line Company laid an eight-inch lateral from the Seminole area eastward to connect with the trunk line system near McAlester, Oklahoma.

Magnolia Loops

The Magnolia Petroleum Company placed 54 miles of additional eight-inch line between Addington and Maud, Oklahoma. This is to assist in the movement of Seminole crude southward. Another piece of Magnolia construction was a six-inch line from the Pawnee district to Yale, Oklahoma.

Due to production in Cooke County, Texas, the Shell Pipe Line Company built 35 miles of four-inch line across Red River to the Healdton district in Oklahoma.

Much of the pipe line work in Oklahoma for the past year has been the reconditioning of old lines. Removal of the pipe, cleaning, painting and often additional protection by wrapping are the chief steps in this work. The Oklahoma Pipe Line Company, Empire Pipe Line Company, Shell Pipe Line Company and others are especially active in this work.

Most of the trunk line construction northward out of Oklahoma has passed through Kansas. Within Kansas there has been very little pipe line construction, other than gathering systems for new fields and extensions to older pools.

In the Lost Springs area both the Prairie Pipe Line Company and the Sinclair Pipe Line Company have four-inch lines to trunk line systems in Kansas. The Skelly Oil Company has built a loading rack in the town of Lost Springs and has a four-inch line to the field.

The Gypsy Oil Company has just completed a loading rack at Drury, Kansas, and has a four-inch line from there to the Gypsy's Wilcox sand wildcat in Sumner County.

Pipe Line Capacity to Texas Coast Greatly Increased

Movement of West Texas and Mid-Continent crude to tidewater involves one new line and looping of several others

By A. R. McTEE
Staff Representative

THROUGHOUT the Gulf Coast territory proper, pipe line construction has been practically at a standstill during the past 18 months. Field activity, both in old districts and in wildcat territory has persisted, probably below normal; and inasmuch as very few new producing areas have been discovered, there has been little need for new oil lines.

There has not been a single major construction project centering wholly within the coastal region. Two big lines, one oil and one gas, have terminated in coast territory, but each of these depend on more remote sections of Texas for its crude and gas supply, respectively.

Humble Pipe Line Company's McCamey-Ingleside line which brings West Texas crude directly to deep water near Corpus Christi comprises the bulk of effort dealing with an oil line touching the coast. This line is about 355 miles long, is a combination of 10 and 12-inch line, and with its loops has a capacity of approximately 50,000 barrels of crude daily. The line originates at Humble's refinery in McCamey, Upton County, and follows the right-of-way of the Kemper-Comyn line to Kemper. From this point the line strikes in a southeasterly direction to Ingleside. Construction began about May 15, 1927, and oil was started through the line on October 1.

Along the line six booster stations were installed. Each station is equipped with three 400-horsepower Diesel type engines, direct connected through flexible couplings to 20,000 and 25,000-barrel horizontal triplex reciprocating plunger pumps.

Pumps are located in separate rooms from the engines to insure protection from hydrogen sulphide gas and also from fire.

On this line 10-inch pipe is used out of the stations over half the distance to the next station. Beyond the half-way point the line switches to 12-inch into the next station.

Both because of its length and the country through which it passes, this line ranks among the most difficult ever to be built. Construction problems taxed the ingenuity of those in charge of the line to a degree hardly imaginable by one not acquainted with the country.

In Bandera County, for instance, for a stretch of 25 miles the line passes through a range of hills of the Edwards Plateau, and just misses the headwaters of the Llano, Sabinal and Hondo Rivers. This is one of the roughest sections of Texas, and it was necessary to blast rock and build roads for the whole stretch to get material on the right-of-way. In some places one joint of pipe at a time had to be windlassed up the hills. The slope was such that pipe had to be laid by hand and pipe machines had to be handled by winches on top of the hills to hold both pipe and machines.

East Texas Gas Line

Traversing more coast territory and partaking more of the nature of a coastal enterprise is the long gas line from the northeast corner of Texas to the coast, recently completed by the Moody-Seagraves interests known as the Dixie Gulf Gas Company. This system also embraces numerous short distributing lines belonging to the Dixie Gas & Fuel Company, and totals about 434.6 miles.

This line originates at Waskom, Texas, and extends to Goodrich, in Polk County, as a 22-inch line. At Goodrich the line branches: an 18-inch branch goes to Port Arthur and a 16-inch branch extends to Houston. The following taps connect with the Port Arthur branch: to Port Neches nine miles; to the Pure Oil Company's plant at Smiths Bluff, 1.6 miles; and a 1.5 mile tap to The Texas Company's Port Neches works. At the other end of the line there is a tap from Waskom to Moringsport, Louisiana, 17.7 miles long. These taps range in size from eight to 12-inch.

The various distributing lines that serve towns along the territory contiguous to the main line total 126.6 miles. These lines range in size from 2 to 12-inch, and in length from 1.5 miles to 45.8 miles. They belong to the Dixie Gas & Fuel Company, and follow in detail: From Longview to Jacksonville, 45.8 miles eight-inch line; from Jacksonville to Palestine, 25.7 miles, six-inch line; from Overton to Henderson, 12 miles, four-inch line; from Jacksonville to Rusk, 13.8 miles, four-inch line; from Port Neches to Orange, 13.5 miles, eight-inch line; Nacogdoches tap, 2.4 miles, four-inch line; Carthage tap, 3.7 miles, two-inch line; Waskom to Jonesville tap, 3.5 miles, two-inch line; Livingston tap, 1.4 miles, two-inch line; Beaumont tap, 1.8 miles, 12-inch line, and Garrison tap, 2.5 miles of four-inch line.

This system of main distributing lines makes available about 150,000,000 cubic feet of gas for the territory and industries it serves.

There are three compressor stations on the line: one at Waskom, one at Nacogdoches, and the third near Goodrich. The Waskom station is equipped with 24 Hope gas engine driven compressors; the other two stations are smaller.

The line is a Dresser line throughout, except highway and railroad crossings where the joints are welded.

Pipe used in this line was made under a new manufacturing process by the A. O. Smith Corporation. The principal feature of the process consists of joining the pipe by hydraulic pressure and then closing the seams by electric welding.

In general, construction problems on the line were not extraordinary. With the exception of a few minor stretches in the coastal plain, no unusual obstacles were met.

New Oil Lines

Completion of an eight-inch line early this month, by Humble Pipe Line Company, from Pierce Junction, in Harris County, to the new Sugar Land area in Fort Bend County, makes up the only line construction in coastal fields this year. This line connects with Humble's main line from North Texas, and gives production from the Dewalt well a direct outlet to the Webster tank farm, about 30 miles south of Houston. The line from Pierce Junction to Dewalt is about 15 miles long. Oil was started through the line early in May.

March 21, Magnolia Pipe Line Company completed a new 240-mile, 10-inch line from the Corsicana station to Beaumont. This line parallels Magnolia's Mid-Continent trunk line and enables a throughput from the combined lines totaling 110,000 barrels of crude from Oklahoma, Kansas, North, Central and West Texas.

The new line is assured a full load for some time since Magnolia is transporting oil for Atlantic Oil Producing Company and Pure Oil Company.

Welding crews began work on the line, January 2, and the job was finished on March 21, giving an average of three miles of completed line per day during construction time.

Gas Line Extensions

The Houston Pipe Line Company has done considerable extension work on its gas line system from Southwest Texas to Houston and the adjacent territory.

The most important of this work was 39.06 miles of 12¾-inch line between Bryan Mound, or Freeport, and Bay City. This line supplies the Gulf plant of the Texas Gulf Sulphur Company as well as the Bryan Mound and Hoskins Mound plants of the Freeport Texas Sulphur

(Continued on page 98)

External view of the booster station at Grant, Ohio

Synchronous Motors and Centrifugal Pumps in Line Service

By L. J. MURPHY
General Engineer, Westinghouse Electric and Manufacturing Company

THE main line of the Illinois Pipe Line Company traverses the three States of Illinois, Indiana and Ohio. It connects with the Prairie Pipe Line Company line at Woodriver, Illinois, on the west and delivers oil to the Tuscarora Pipe Line Company at Negley, Ohio, on the east, from which the oil is transported through to Bayonne, New Jersey. At Lima, Ohio, the Illinois Pipe Line connects up with the Buckeye Pipe Line Company and also with a line recently acquired from the Indiana Pipe Line Corporation, receiving oil from the Kentucky fields.

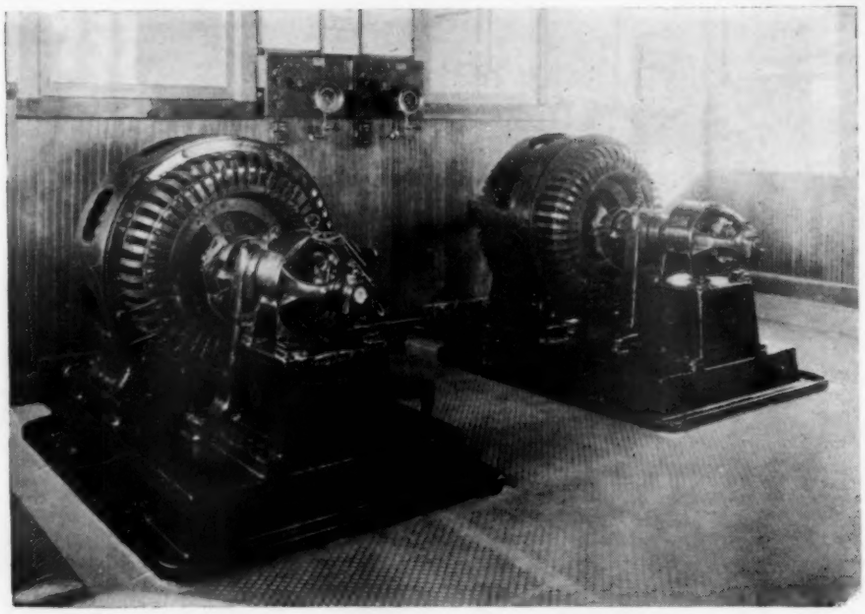
In the summer of 1927 the Illinois Pipe Line Company was confronted with the problem of increasing quickly the daily capacity of that section of the line between Lima and the Pennsylvania border. How could this be accomplished in the quickest and most economical manner? Should they parallel their eight-inch line with an additional line over that section which was then loaded to capacity, or should they install booster stations at intermediate points between the steam stations, then in existence, thus operating the line at a greater capacity without exceeding safe operating pressures at any point? In anticipation of this condition tests with centrifugal pumps had been conducted in the Perrysville station to establish definitely the suitability of this type of pump to the application. Two Cameron centrifugal pumps, each driven by a Westinghouse 150-horsepower, 1800-r.p.m. synchronous motor, had been installed and they had proved to the satisfaction of the company that oil could be handled without danger of emulsification.

The results of these tests and a thorough investigation of the relative economies of the different forms of drive convinced them that the solution to their problems was to install motor-driven centrifugal pumps in five booster stations located approximately midway between the steam stations over this stretch of line. Ten motor-driven centrifugal pumps were purchased and the daily capacity of the line which, prior to this time, had been 15,000 barrels per day, was increased up to 22,000 barrels per day, or an increase of almost 50 per cent.

The equipment involved at each station consists essentially of a 24x34-foot corrugated iron pump building, a surge tank of 1000 barrels capacity and a separate smaller building serving as a telegraph office and tool house. In the pump house are two motor-driven centrifugal pumps, together with the necessary control equipment.

Pumps

The pumps are five-stage Cameron centrifugal pumps having a capacity of 650 gallons per minute when operating at a 1660-foot head and running at a speed of 1800 r.p.m. They are so arranged that either pump can be operated at any time,



The two 400 hp., 1800 rpm. Westinghouse synchronous motors in the Grant station

although it is the intention of the Illinois Pipe Line Company never to operate both pumps at the same time but rather to use one pump as a stand-by unit, thus insuring practically 100 per cent. operation.

The two pumps in each station are driven by 400-horsepower, 2200-volt, three-phase, 60-cycle, 1800-r.p.m., coupled type synchronous motors with direct-connected exciter; manufactured by the Westinghouse Electric and Manufacturing Company. The motors are direct-connected to the pumps through flexible couplings and the motor exciter and pump are mounted on a cast iron bedplate.

For the control of each motor, magnetic push button type control is employed, so arranged that the motor is started up on reduced voltage and after a certain definite time, full voltage is applied. When the motor is nearly up to synchronous speed, the exciter is connected to the motor field and the motor is pulled into step. A 750-pound pressure regulator panel in the discharge line stops the motor in case of either high or low pressure, thereby furnishing protection in case of a break in the line or in case of trouble at the next station.

As a protection against possible fire hazard, the pumps are located in one room and the motors and their control in another with a fire wall separating the two. The motor shaft passes through a stuffing box in the fire wall. As an additional precaution against fire hazard, all lights around the station are enclosed in gas-proof fixtures and in the case of the pump room, the lights are located outside the building, and by using the proper reflectors the pump room is illuminated through the windows.

Costs

The first cost of each of the centrifugal booster stations, complete with buildings, surge tank, two pumps and two motors and control, and installation costs, did not exceed $25,000.

With only one moving part in the pump and one in the motor, maintenance costs are a minimum and frequent adjustment and repairs to the machine are, therefore, not necessary. Boiler maintenance and the difficulty of obtaining suitable water are things of the past. Water troubles, while not of much importance in Ohio, are, however, prime factors in the consideration of pipe line equipment throughout other sections of the country through which pipe lines run.

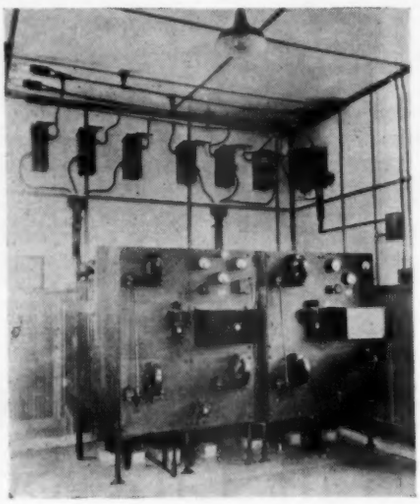
Power to operate the booster station has averaged $2000 to $2400 per month per station, which is somewhat in excess of the coal bill for operating the steam station where 10 tons of coal are consumed each day.

The motor-driven centrifugal pump, with its smooth flow of power and steady even pressures, means a lower friction head with consequently greater flow. At the same time surges in the line and troubles with leaking joints and blown-out packing due to pulsating flow, are all greatly minimized, resulting in savings, the extent of which time alone will tell.

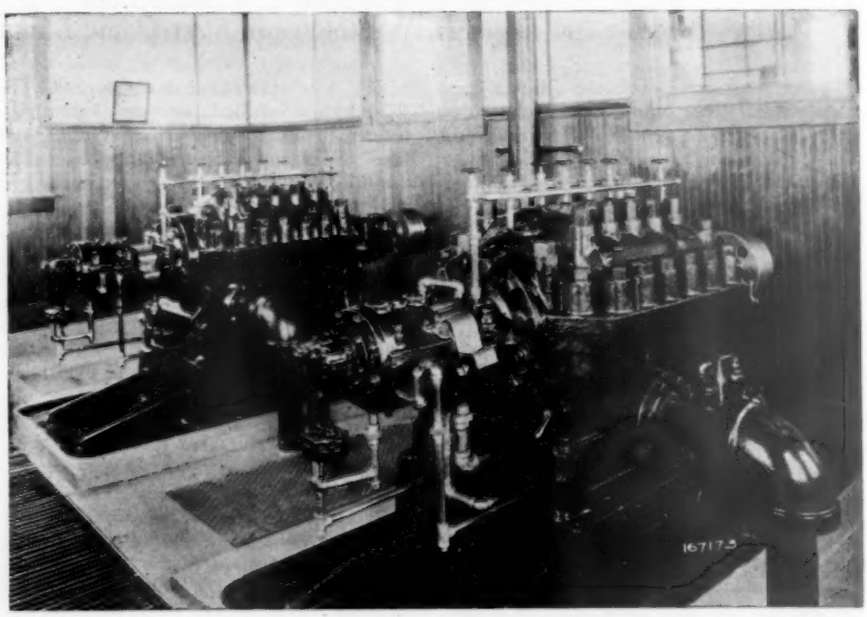
These advantages of the motor-driven centrifugal pump, and many more—their low stand-by losses, their speed of installation, their light weight rendering transportation over poor roads a simple matter, the fact that emulsification of the oil is avoided and reduction in taxes due to lower investment—all contribute in determining the selection of equipment for this line.

As a result of the success of these first installations, the Illinois Pipe Line Company has purchased and installed 27 additional units for their 10-inch line running from the Yates pool in West Texas down to Del Rio. These pumps and motors are, incidentally, exact duplicates of those furnished for the line across Ohio.

The Illinois Pipe Line Company can rightfully be considered as the pioneers in wholeheartedly adopting centrifugal pumps for pipe line service. The results of their installations are being watched with considerable interest by the engineers of other companies.



Two synchronous motor starting panels



Interior of the pump room showing the two Cameron pumps and the fire wall separating the pump room and motor room

STEEL STORAGE FACILITIES IN THE NORTH TEXAS DISTRICT

ARCHER COUNTY

Company—	Number Tanks	Size Tanks in Bbls.	Total Storage
Continental Oil Company	1	55,000	55,000
H. Freeman, et al.	1	37,500	37,500
Gulf Production Company	2	55,000	110,000
Humble Oil & Refining Company	2	30,000	60,000
Magnolia Petroleum Company	2	55,000	110,000
Pure Oil P. L. Co. (Prairie)	1	55,000	55,000
J. I. Staley	1	37,500	37,500
Total	10	.....	465,000

CLAY COUNTY

Texas Pipe Line Company	8	55,000	440,000
Texas Pipe Line Company	1	37,500	37,500
Total	9	.....	477,500

COOKE COUNTY

Humble Oil & Refining Company	1	20,000	20,000

MONTAGUE COUNTY

Continental Oil Company	2	55,000	110,000

WICHITA COUNTY

Burkburnett—			
Continental Oil Company	4	55,000	220,000
Gulf Production Company	4	55,000	220,000
Humble Oil & Refining Company	9	55,000	495,000
Magnolia Petroleum Company	4	55,000	220,000
Margay Oil Company	1	25,000	25,000
C. F. Noble Oil & Gas Company	7	55,000	385,000
Old Dominion Oil Company	1	37,500	37,500
Sinclair Pipe Line Company	25	55,000	*1,375,000
Skelly Oil Company	1	55,000	55,000
The Texas Pipe Line Company	10	55,000	550,000
Tidal-Western Oil Company	1	55,000	55,000
White Eagle Oil & Ref. Company	1	55,000	55,000
Total	68	.....	3,692,500
Electra—			
Dale Oil & Refining Company	1	37,500	37,500
Gulf Production Company	1	55,000	55,000
Gulf Production Company	1	37,500	37,500
Magnolia Petroleum Company	6	55,000	330,000
Magnolia Petroleum Company	3	37,500	112,500
Texas Pipe Line Company	4	55,000	220,000
Texas Pipe Line Company	7	37,500	262,500
Waggoner Refining Company	2	55,000	110,000
Total	25	.....	1,165,000
Iowa Park—			
Continental Oil Company	1	55,000	55,000
Humble Oil & Refining Company	1	55,000	55,000
Iowa Park P. & R. Company	1	55,000	55,000
Texas Pipe Line Company	1	20,000	20,000
Total	4	.....	185,000
Wichita Falls—			
American Refining Company	3	55,000	165,000
American Refining Company	2	37,500	75,000
Roy I. Carter, et al.	1	55,000	55,000
Continental Oil Company	3	55,000	165,000
Panhandle Refining Company	2	55,000	110,000
Panhandle Refining Company	2	37,500	75,000
Pure Oil Pipe Line Company	4	55,000	220,000
Pure Oil Pipe Line Company	1	20,000	20,000
J. I. Staley, et al.	2	25,000	50,000
Total	20	.....	935,000
Totals for Wichita County	117	.....	5,977,500

WILBARGER COUNTY

Humble Oil & Refining Company	2	55,000	110,000
Sinclair Pipe Line Company	1	55,000	55,000
Total	3	.....	165,000

YOUNG COUNTY

Simms Oil Company	1	.....	55,000
The Texas Company	1	.....	3,500
Total	2	.....	58,500
Total for North Texas	144	.....	7,273,500

(*) Located on Oklahoma side of Burkburnett field.

Steel facilities in the Central West Texas district are listed below by fields and counties, with total for each company:

BROWN COUNTY

Humble Oil & Refining Company	3	30,000	90,000

COLEMAN COUNTY

Gladys Bell Oil Company	1	55,000	55,000

COMANCHE COUNTY

Humble Oil & Refining Company	40	55,000	2,200,000
Magnolia Petroleum Company	9	55,000	495,000
United Producers Pipe Line Company	1	55,000	55,000

EASTLAND COUNTY

Gulf Production Company	19	55,000	1,045,000
Humble Oil & Refining Company	36	55,000	1,980,000
Humble Oil & Refining Company	1	37,500	37,500
Humble Oil & Refining Company	1	35,000	35,000
Magnolia Petroleum Company	28	55,000	1,540,000
Sinclair Pipe Line Company	6	55,000	330,000
The Texas Pipe Line Company	12	55,000	660,000
T. P. Coal & Oil Company	6	55,000	330,000
United Producers Pipe Line Company	1	37,500	37,500

PALO PINTO COUNTY

Sinclair Pipe Line Company	2	35,000	70,000
The Texas Pipe Line Company	2	55,000	110,000
United Producers Pipe Line Company	3	55,000	165,000

SHACKLEFORD COUNTY

The Texas Pipe Line Company	1	37,500	37,500

STEPHENS COUNTY

Gulf Production Company	4	37,500	150,000
Humble Oil & Refining Company	6	55,000	330,000
Humble Oil & Refining Company	2	37,500	75,000
The Texas Pipe Line Company	1	55,000	55,000
The Texas Pipe Line Company	2	10,000	20,000
Total	187	.....	9,902,500

Empire Finds Reconditioning Old Lines Worthwhile

By WALLACE DAVIS
Staff Representative

THE job of reconditioning an 11-year-old, eight-inch oil carrier, 161 miles long, of Empire Pipe Line Company between El Dorado, Kansas, and Cushing, Oklahoma, offers an instance of policy that is rapidly coming in force in the Mid-Continent territory.

Due to efficiency obtained of late in overhauling old lines, this type of work is expected to undergo broad expansion within the next few years. More companies are continually coming to it. Such a program is an established policy of the Empire now.

Reconditioning old lines is not altering the progress of new line laying. It is one of the outstanding moves toward economy now in evidence in the industry. With good pipe secured initially, plus present equipment for re-working available, there is the possibility that little pipe, regardless of its period of service, will be junked in the near future. And, with practically no old lines being junked, the newly laid carriers are representing net increase in capacity rather than part of this added capacity being offset by the dropping of old lines from service.

The Empire's program for this summer on its El Dorado-Cushing line calls for reconditioning 38 miles, the Winfield-Ponca City unit. Work was begun early in April, employing a single crew intact, completing the job as it goes. During the first four weeks of work 8½ miles of line had been uncovered, eight miles raised and cleaned by machine, 6½ miles primed and enameled, and 5 9-10 miles lowered and back-filled. Of this amount of pipe handled, only 700 feet of old line had been junked and replaced by new joints.

The service under which this line has gone to hold to its present condition might be determined by the fact that it has moved an average of 5,000,000 barrels of oil annually for the past 11 years, or 55,000,000 barrels.

The remaining units of the 161-mile carrier will be reconditioned periodically, the second job being scheduled for the spring of 1929. The major portion of the 161 miles has been in service since 1911.

Equipment

On this job the Empire is using a Barber-Greene ditcher driven by a 50-horse power gasoline engine, capable of digging a mile of ditch, two feet wide and four feet deep, thereby handling 42,000 cubic feet of dirt daily. The ditch is cut as near the old line as possible without danger of fracturing of the pipe. An operator's helper follows immediately behind the boom taking soundings with an iron prod. A shovel gang then strips the thin layer of old filling to the bottom, and this section is ready for raising.

Six Wheatley pipe raising tripods, mounted on wheels and equipped with winch, cable, clutch and breaks, are employed on the job. A W-K-M traveling type cleaning machine, driven by a Ford motor, and capable of cleaning 3500 feet of line daily, is preparing the old line for re-working.

A portable Lincoln stable arc welder, two sets of Ox-weld equipment, with truck carriers for oxygen and prestolite, and two paint pots equipped with kerosene burners, are doing the reconditioning work.

Prior to starting reconditioning of the line the 38-mile section was filled with 28,000 barrels of water to flush out the oil. During the overhauling job the Ponca City refinery will operate on Seminole crude run through the south end, whereas it has formerly run mainly the crude from Kansas fields.

Inspection of the old pipe follows the cleaning job, to determine what part of the pipe shall be cut out, and what part shall be arc welded and patched. Pipe to be cut out and junked is designated by certain markings, while pitholes needing welding are encircled with crayon.

Welding

The arc welding machine is driven by a gasoline engine and carries 500 feet of cable, thus allowing 1000 feet of line to be worked at a single set-up. Small pit holes are filled by arc welding, while the large pittings are patched from another piece of pipe by welding. Undesirable spots are cut out by Oxweld equipment, as are the pieces used in patch work.

A cold priming coat of Biturine enamel primer is given the pipe after repair jobs are completed, and this is followed by a hot treatment of Biturine enamel solution. The primer coating is being applied by a heavy strip of nap rug, 18 inches wide and four feet long, slung under the line and pulled in see-saw fashion as two men pull it forward along the line. A third man, walking backwards on the pipe, pours the primer from a bucket, keeping the rug saturated. The top of the pipe is coated by a slack loop in the rug being thrown over as it is pulled up. A man follows behind this operation, daubing with a brush to insure complete covering. By this method the primer coat can be applied on an eight-inch line at the rate of 3000 feet per hour.

The re-worked line is ready to be lowered immediately following the application of hot enamel due to its rapid setting quality. The cold primer coat is allowed to set six to eight hours before the hot enamel treatment, however. Before lowering the pipe, all unprotected spots, where the pipe has rested on skids, are touched up.

A Fordson tractor, equipped with bulldozer and mormon board, is used for backfilling. The bulldozer serves the ordinary job, pushing dirt into the ditch, while the mormon board is used with a power winch to pull the dirt in at places where the regular bulldozer method cannot be used.

Guthrie, Oklahoma. — Ten miles northwest of here, in the southeast of the southwest of Section 33-18-3w, approximately six miles south of the Lovell pool of Logan County, a gas flow estimated as good for 1,000,000 cubic feet daily has been found about 80 feet higher than other Logan County production, in Tonkawa sand at 3907 feet, by Freeland, Haley and the Consolidated Drilling Company.

Six miles east of this potential producing area Tibbetts and Bond, wildcat operators, have moved in a rotary outfit to drill Donahoe 1, in the southwest of the northwest of the southeast of Section 21-18-2w. Two tests have been drilled on this farm previously, one having gone to 1800 feet and the other to 3500 feet, where the hole was junked after drilling trouble developed.

Tulsa.—Magnolia's Singletary 1, in the southeast of the northeast of the northwest of Section 23-7-4, St. Louis pool, Pottawatomie County, added weakness to this already weakened area by finding water in the Wilcox sand at 7372-75 feet. It is being plugged back to make a Viola or Hunton lime producer at around 4360 feet.

Due to some water developed here, and a decline in production of the Pottawatomie County fields, the shutdown committee, authorized to curtail development late in April, has found no occasion to go ahead with advice on restricting drilling.

Showing Operations of Reconditioning Empire Line

1—*Shows pits in pipe when taken up.*

2—*Inspecting and daubing behind "hot" gang.*

3—*Ditching some new ditch and uncovering old pipe.*

4—*After the section shown in No. 1 has been patched by welding.*

5—*Reconditioned pipe ready to be lowered.*

6—*Fordson caterpillar equipped with bulldozer and winch for mormon board operation.*

7—*Wheatley Brothers pipe raising tripod.*

West Texas District Has Ample Surplus of Tank Room

Restriction of field output to pipe line capacity will halt immediate material addition to stocks; 26,518,474 barrels on hand

By H. H. KING
Staff Representative

SAN ANGELO, Texas — Crude oil stocks in the West Texas district have been accumulated in sufficient quantities to enable the trunk lines now in operation and those nearing completion to operate at maximum capacity for about 133 days continuously without additional production. Total stocks in the district on May 1 were estimated at 26,518,475 barrels, while the combined capacity of the six trunk lines leading out of the district will average 200,000 barrels daily when the Pasotex and Shell lines are completed and placed in operation in June. An appreciable reduction in these stocks is not in sight for many months, since the Yates and Hendrick fields, which are credited with a combined potential output of nearly one million barrels daily on open flow, are being restricted by proration orders to a figure that totals the same as the actual trunk line outlet for the district.

Construction of crude storage facilities in the district is now apparently out of proportion to actual requirements for some of the companies, because of the operators not anticipating the enforcement of a proration order in the Winkler County area beginning May 5. Total storage facilities in the West Texas district on May 19 were 44,327,000 barrels, including 37,847,000 barrels completed and 6,480,000 barrels of new tankage under construction, or en route from the mills. These figures include the one million barrel concrete reservoir now being used by Roxana Petroleum Corporation to store Hendrick field oil at Monahans, Ward County, and also the same concern's million barrel tank under construction at McCamey.

Stock Accumulation

Crude stocks were accumulated at the rate of 127,383 barrels daily during April in this district, making a total of 3,821,500 barrels added during the month, but this high mark will not be approached in the near future, with proration in force in the Winkler County area, as the heaviest additions to storage was made with Hendrick field curde. Total storage now completed and idle in the district and that under construction would enable the West Texas producers and crude purchasing agencies to maintain the April rate of storage additions for 139 days. However, a large amount of this idle storage is somewhat isolated from the fields that are requiring additional storage facilities.

Excepting the McCamey reservoir, which will be used by Roxana Petroleum Corporation in storing various crudes produced and purchased in West Texas to support the Shell Pipe Line Company's trunk line, all new tankage going up in West Texas is for storing Hendrick crude, and located in Winkler and Midland Counties. Gulf is adding eight 80's in the Hendrick field because of not having a private line into this area and only disposing of 5000 barrels of its allowable production. Southern Crude Oil Purchasing Company is adding a large number of tanks in the Hendrick field, since its entire market outlet is restricted to tank car shipments.

Atlantic Oil Producing Company, Magnolia Petroleum Company and Pure Oil Company have a three-way pipe line arrangement for their production and outside purchases in the Hendrick field, and all three will probably continue to add to their tankage. These three concerns utilize the Atlantic's 50,000-barrel line from Hendrick field to Midland, where it feeds into large tank farms held by Atlantic and Magnolia and also into Magnolia's 25,000-barrel trunk line to tidewater. Atlantic has contracted to take a maximum of 10,000 barrels daily from Pure in exchange for other crudes, and Pure is storing its surplus in the field porper. Neither of these companies care to use tank cars in moving their oil to distant refineries and export terminals, and the surplus above Magnolia's trunk line is stored at Midland.

Magnolia has been at the top of the list of crude stock owners in West Texas for some months because of having assigned the major portion of its trunk line outlet to Atlantic and Pure from Midland station to the east. On May 1 Magnolia was credited with having 3,901,500 barrels of oil in storage, and will provide steel tankage for three million barrels on a contract held with Cranfill & Reynolds, Inc., but the latter will own one-half of the oil stored under this contract, which will soon be one-third completed.

Landreth Production Corporation, Fort Worth, is the second largest owner of crude stocks in West Texas through having filled nearly 42, 55's and 80's from its prolific strip lease in the Church and Fields area, Crane County, during the period that a market for the oil, or pipe line connections could not be had. However, Landreth has discontinued accumu-

WEST TEXAS STOCKS

Crude stocks in the West Texas district at the close of April, 1928, are listed below by companies:

Company—	Total Barrels
Magnolia Petroleum Co.	3,901,500
Landreth Production Corp.	3,150,500
Gulf Production Co.	2,285,700
Mid-Kansas Oil & Gas Co.	1,936,200
Simms Oil Co. and Atlantic Oil Prod.	1,900,700
Humble Oil & Refining Co.	1,892,900
Warner-Quinlan Co. of Texas	1,883,000
Atlantic Oil Prod. Co.	1,419,825
Roxana Petroleum Corp.	1,365,200
Southern Crude Oil Pur. Co.	1,365,190
Prairie Oil & Gas Co.	1,151,200
American Petroleum Co.	856,575
Marland Production Co.	712,850
Texon Oil & Land Co.	589,200
Big Lake Oil Co.	444,195
The California Company	371,825
Independent Oil & Gas Co.	335,995
Pure Oil Company	283,800
Reagan County Pur. Co.	258,250
Cranfill-Reynolds, Inc., et al	215,700
Col-Tex Refining Co.	95,000
T. P. Coal & Oil Co.	71,725
The Texas Company	16,250
Simms Oil Company	10,600
Phillips Petroleum Co.	4,595
Total	26,518,475
Total at close of March 1928	22,695,975
Increase during April	3,821,500

WEST TEXAS STORAGE

Large steel tankage completed, building and contracted for in 12 counties in the West Texas district aggregates 42,327,000 barrels gross capacity, of which 36,847,000 barrels are completed and 5,480,000 barrels are scheduled for completion in a few months. The tankage program is shown below by counties:

Counties—	Gross capacity completed tanks	Capacity tanks building	Total capacity
Crane	7,862,000	.....	7,862,000
Crockett	55,000	.....	55,000
Howard	385,000	.....	385,000
Jones	55,000	.....	55,000
Midland	6,000,000	2,240,000	8,240,000
Mitchell	420,000	.....	420,000
Pecos	783,000	.....	783,000
Reagan	3,550,000	.....	3,550,000
Upton	4,009,000	.....	4,009,000
Val Verde	2,000,000	.....	2,000,000
Ward	3,990,000	.....	3,990,000
Winkler	7,738,000	3,240,000 *	10,978,000
Total	36,847,000	5,480,000	(*) 42,327,000

(*) Roxana's two million barrel reservoirs not included in total.

lating oil in this area by reason of a contract made last January to deliver 7500 barrels daily to Magnolia over the balance of this year. Landreth is holding the Crane County oil for better market conditions, and has just placed contract for painting the 42 tanks with aluminum paint.

The Pasotex Petroleum Company, subsidiary of Standard of California, has just completed erecting six 80's at its refinery near El Paso, but this tankage is not included in the above totals, although it will be filled with Hendrick crude upon the completion of the Pasotex line next month.

Allen Field Facing Order To Restrict Output

Tulsa, Okla.—Conservation's trusty old hatchet has been officially authorized to cut another Oklahoma field down to the market's size, and Allen field operators are facing the slow signal of the Mid-Continent Oil & Gas Association's "oil traffic board," the committee of seven.

Companies and individual producers active in this rapidly increasing spot met with Umpire Ray Collins in Tulsa May 16, and, without a single word of protest, came to a hasty conclusion to curtail drilling that would tend to enter Allen field in the over-production class. Collins opened the meeting with explanation of past shut-down moves instrumental in checking Oklahoma production, and asked for the naming of a chairman for the meeting. He was immediately voted to this place, and on hearing the unanimous opinions in favor of holding the field to normal output temporarily named five men to serve on a committee to regulate drilling in the field.

All of those chosen for the Allen field committee are prominent in the area's development, and are as follows: Berry Griffith, Sinclair, chairman; George Moody, Mid-Continent Petroleum Corporation; M. J. Kirwan, I. T. I. O. Company; Frank Walling, Gilcrease Oil Company, and C. H. Wright, Sunray Oil Company.

Ninety wells in the Allen field, touching portions of Pontotoc, Hughes and Seminole Counties, averaged 20,250 barrels daily during the week ending May 12. The sudden sharp increase coming early in May resulted chiefly from the deepening of wells in the Cromwell sand at around 2700-2800 feet. Forty-two wells were drilling May 15.

Standard of California Pays Ninth Dividend

San Francisco.—Standard Oil Company of California paid a dividend of .62½ a share on May 15. This was the regular dividend, No. 9.

LOCATION OF WEST TEXAS TANKS

A complete survey of all large steel tankage in use, under construction and contracted for in the West Texas district on May 19th, 1928, is listed below by companies:

	No. comp'd tanks	No. tanks bldg.	Size tanks in bbls.	Location: Section, block and survey—
CRANE COUNTY—				
Atlantic Oil Prod. Co.	6	..	55,000	SE¼ Sec. 46, blk 30, University Lands
Atlantic Oil Prod. Co.	6	..	55,000	NE¼ Sec. 45, blk 30, University Lands
Atlantic Oil Prod. Co.	2	..	74,000	NE¼ Sec. 45, blk 30, University Lands
Warner-Quinlan Co.	1	..	80,000	E½ SW¼ Sec. 39, blk 30, University Lands
Warner-Quinlan Co.	2	..	55,000	E½ SW¼ Sec. 39, blk 30, University Lands
Warner-Quinlan Co.	1	..	64,000	W½ NW¼ Sec. 47, blk 30, University Lands
Warner-Quinlan Co.	4	..	55,000	W½ NW¼ Sec. 47, blk 30, University Lands
Warner-Quinlan Co.	12	..	55,000	E½ E½ Sec. 44, blk 30, University Lands
Warner-Quinlan Co.	4	..	55,000	NE¼ Sec. 41, Louis Yarborough Survey
Gulf Pipe Line Co.	2	..	80,000	NE¼ Sec. 202, blk "F", CCSDRGNG Survey
Humble Pipe Line Co.	4	..	55,000	NE¼ Sec. 216, blk "F", CCSDRGNG Survey
Humble Oil & Ref. Co.	6	..	55,000	NW¼ Sec. 36, blk 30, University Lands
Independent O. & G. Co.	2	..	55,000	E½ NW¼ Sec. 46, blk 30, University Lands
Landreth Production Corp.	31	..	55,000	Strip Lease, Survey 10, blk "J-C"
Landreth Production Corp.	12	..	80,000	NE¼ Sec. 8, blk "X", CCSDRGNG Survey
Magnolia Pipe Line Co.	4	..	55,000	SE¼ SE¼ Sec. 44, blk 30, University Lands
Warner-Quinlan Co.	2	..	80,000	SW¼ Sec. 47, blk 30, University Lands
Warner-Quinlan Co.	6	..	55,000	SW¼ Sec. 47, blk 30, University Lands
Warner-Quinlan Co.	1	..	37,500	SW¼ Sec. 47, blk 30, University Lands
Prairie Oil & Gas Co.	3	..	55,000	NE¼ Sec. 47, blk 30, University Lands
Simms Oil Company	16	..	55,000	NE¼ Sec. 45, blk 30, University Lands
Simms Oil Company	6	..	55,000	SE¼ Sec. 46, blk 30, University Lands
Southern Pipe Line Co.	1	..	55,000	NE¼ Sec. 41, Louis Yarborough Survey
The Texas Company	1	..	37,500	W½ Sec. 22, blk 35, H&TC Ry. Survey
CROCKETT COUNTY—				
Humble Pipe Line Co.	1	..	55,000	S½ Sec. 2, blk "BB", N. A. Miller Survey
HOWARD COUNTY—				
Magnolia Petroleum Co.	7	..	55,000	SW¼ Sec. 12, blk 30, T&P Ry. Sur. T-1-S
JONES COUNTY—				
Phillips Petroleum Co.	1	..	55,000	NW¼ Sec. 19, blk 19, T&P Ry. Survey
MIDLAND COUNTY—				
Atlantic Oil Prod. Co.	16	11	80,000	N½ Sec. 40, blk 38, T&P Ry. Sur. T-1-S
Atlantic Oil Prod. Co.	5	..	55,000	N½ Sec. 40, blk 38, T&P Ry. Sur. T-1-S
Gulf Pipe Line Co.	6	..	80,000	S½ Sec. 41, blk 38, T&P Ry. Sur. T-1-S
Gulf Pipe Line Co.	4	..	55,000	S½ Sec. 41, blk 38, T&P Ry. Sur. T-1-S
Magnolia Petroleum Co.	17	..	55,000	Sec. 43, blk 38, T&P Ry. Sur. T-1-S
Magnolia Petroleum Co.	27	17	80,000	Sec. 43, blk 38, T&P Ry. Sur. T-1-S
MITCHELL COUNTY—				
Coltex Refining Co.	1	..	55,000	S½ Sec. 42, blk 26, T&P Ry. Survey
Coltex Refining Co.	1	..	35,000	S½ Sec. 42, blk 26, T&P Ry. Survey
Coltex Refining Co.	3	..	15,000	NE¼ Sec. 21, blk 28, T&P Ry. Sur. T-1-N
Magnolia Petroleum Co.	6	..	55,000	W½ Sec. 47, blk 29, T&P Ry. Sur. T-1-N
PECOS COUNTY—				
The California Co.	1	..	55,000	Sec. 34, blk 194, GC&SF Ry. Survey
Humble Pipe Line Co.	2	..	64,000	E½ Sec. 58, blk 1, I&GN Ry. Survey
Humble Oil & Ref. Co.	1	..	55,000	Sec. 36, blk 194, GC&SF Ry. Survey
Illinois Pipe Line Co.	2	..	55,000	E½ Sec. 61, blk 1, I&GN Ry. Survey
Illinois Pipe Line Co.	2	..	55,000	E½ Sec. 62, blk 1, I&GN Ry. Survey
Roxana Petroleum Corp.	2	..	80,000	N end Sec. 61, blk 194, GC&SF Ry. Survey
Simms Oil Company	3	..	55,000	Sec. 103, T. C. Ry. Survey
REAGAN COUNTY—				
Big Lake Oil Company	12	..	55,000	Sec. 11, blk 2, University Lands
Humble Pipe Line Co.	10	..	66,000	SE¼ Sec. 11, blk 11, University Lands
Humble Pipe Line Co.	5	..	64,000	SE¼ Sec. 11, blk 11, University Lands
Humble Pipe Line Co.	2	..	67,500	SE¼ Sec. 11, blk 11, University Lands
Reagan Co. Purchasing Co.	16	..	80,000	SW¼ Sec. 11, blk 11, University Lands
Texon Oil & Land Co.	9	..	55,000	Secs. 35 and 36, blk 9, University Lands
UPTON COUNTY—				
Gulf Pipe Line Co.	2	..	80,000	NE¼ Sec. 2, GC&SF Ry. Survey
Humble Pipe Line Co.	17	..	55,000	N¼ Sec. 65, blk 35, H&TC Ry. Survey
Marland Pipe Line Co.	6	..	80,000	E¼ Sec. 64, blk 35, H&TC Ry. Survey
Marland Pipe Line Co.	4	..	55,000	E¼ Sec. 64, blk 35, H&TC Ry. Survey
Mid-Kansas O. & G. Co.	1	..	55,000	NW¼ Sec. 19, blk 1, MK&T Ry. Survey
Mid-Kansas O. & G. Co.	1	..	55,000	NE¼ Sec. 34, blk 1, MK&T Ry. Survey
Prairie Oil & Gas Co.	21	..	55,000	Sec. 31, blk 42, T&P Ry. Survey T-5-S
Roxana Petroleum Corp.	8	..	80,000	Sec. 7, GC&SF Ry. Survey
Southern Pipe Line Co.	2	..	55,000	NW¼ Sec. 64, blk 35, H&TC Ry. Survey
Texas Pipe Line Co.	1	..	64,000	W¼ Sec. 66, blk 35, H&TC Ry. Survey
T. & P. Coal & Oil Co.	1	..	80,000	Sec. 5, GC&SF Ry. Survey
T. & P. Coal & Oil Co.	1	..	55,000	Sec. 5, GC&SF Ry. Survey
VAL VERDE COUNTY—				
Mid-Kansas O. & G. Co.	25	..	80,000	Sec. 9, blk B-3, I&GN Ry. Survey
WARD COUNTY—				
American Petroleum Co.	10	..	55,000	W½ SE¼ Sec. 81, blk "F", GMMB&A Survey
American Petroleum Co.	5	..	80,000	W½ SE¼ Sec. 81, blk "F", GMMB&A Survey
Independent O. & G. Co.	2	..	55,000	SE¼ SW¼ Sec. 60, blk "F", GMMB&A Survey
Landreth Prod. Corp.	10	..	80,000	S½ SE¼ Sec. 80, blk "A", GMMB&A Survey
Southern Pipe Line Co.	18	..	80,000	Sec. 20, blk "F", GMMB&A Survey
Southern Pipe Line Co.	3	..	55,000	Sec. 20, blk "F", GMMB&A Survey
Southern Pipe Line Co.	1	..	25,000	Sec. 20, blk "F", GMMB&A Survey
Southern Pipe Line Co.	1	..	20,000	Sec. 20, blk "F", GMMB&A Survey
Texon Oil & Land Co.	6	..	80,000	S½ SE¼ Sec. 100, blk "F", GMMB&A Survey
WINKLER COUNTY—				
American Petroleum Co.	2	..	80,000	SE¼ Sec. 35, blk B-5, P. S. L. Survey
American Petroleum Co.	2	..	10,000	SE¼ Sec. 35, blk B-5, P. S. L. Survey
Atlantic Oil Prod. Co.	10	5	80,000	NE¼ SE¼ Sec. 31, blk B-5, P. S. L. Survey
Gulf Production Co.	20	..	80,000	NW¼ Sec. 34, blk B-5, P. S. L. Survey
Gulf Production Co.	6	8	80,000	SE¼ Sec. 32, blk B-5, P. S. L. Survey
Humble Oil & Ref. Co.	12	..	64,000	Sec. 8, blk B-12, P. S. L. Survey
Humble Oil & Ref. Co.	2	..	67,500	Sec. 8, blk B-12, P. S. L. Survey
Independent O. & G. Co.	2	..	55,000	E½ NW¼ Sec. 41, blk B-5, P. S. L. Survey
Independent O. & G. Co.	2	..	55,000	W½ SW¼ Sec. 34, blk B-5, P. S. L. Survey
Landreth Prod. Corp.	5	5	80,000	SW¼ Sec. 29, blk B-5, P. S. L. Survey
Magnolia Petroleum Co.	1	..	80,000	W½ NE¼ Sec. 29, blk B-5, P. S. L. Survey
Magnolia Petroleum Co.	4	6	80,000	N½ Sec. 6, blk B-11, P. S. L. Survey
Magnolia Petroleum Co.	7	..	55,000	N½ Sec. 6, blk B-11, P. S. L. Survey
Murchison Oil Co. et al.	..	1	80,000	
Prairie Oil & Gas Co.	4	3	55,000	N½ Sec. 24, blk B-5, P. S. L. Survey
Pure Oil Company	6	4	55,000	SE¼ Sec. 34, blk B-5, P. S. L. Survey
Roxana Petroleum Corp.	7	..	80,000	N½ SW¼ Sec. 40, blk B-5, P. S. L. Survey
Roxana Petroleum Corp.	2	..	80,000	S½ NE¼ Sec. 41, blk B-5, P. S. L. Survey
Southern Pipe Line Co.	3	..	55,000	N½ NE¼ Sec. 6, blk B-12, P. S. L. Survey
Southern Pipe Line Co.	6	10	80,000	N½ Sec. 5, blk B-12, P. S. L. Survey
Skelly Oil Co.	..	1	55,000	W½ SE¼ Sec. 40, blk 26, P. S. L.
Texon Oil & Land Co.	3	..	80,000	SW¼ NE¼ Sec. 7, blk B-12, P. S. L. Survey
The California Co.	5	..	80,000	E½ NE¼ Sec. 29, blk B-5, P. S. L. Survey
The California Co.	1	..	55,000	E½ NE¼ Sec. 29, blk B-5, P. S. L. Survey

A Standard Oil Company reservoir at El Segundo

California Has Storage Capacity of 175,000,000 Barrels

Development of concrete reservoirs for heavy oil and protection from lightning features in providing storage

By BRAD MILLS
Staff Representative

OVERPRODUCTION, the most dreaded of all evils in the oil industry, has been chiefly responsible for the construction of California's 175,000,000-barrel storage system. As the different areas produced surplus oil, the cry for additional storage facilities was sent out and there was only one thing to do—build more storage. The lack of storage has acted as a curb on production for short intervals, but the impatient producer seems always to have found a place to store his oil.

The low price of oil during these depressions did not cause the average producer to shut down operations but it did have a marked effect on the type of reservoirs built to accomodate a heavy black oil. During the later periods of overproduction, the price of oil was not so low and the gravity was much higher.

Several small reservoirs with a capacity of about 50,000 barrels each were in use near the old Kern River field about 1900. They were built to care for the heavy oil produced in the territory and were pioneers in their line. One, however, was a radical departure from the remainder, having a lining of brick set in mortar.

Early in 1903, the building of reservoirs was begun in earnest. Engineering principles were followed, where the earliest type of container was closely related to an ordinary excavation. Col. E. H. Wilcox designed and built for the Associated Oil Company one of the first large reservoirs in California. It was 393 feet in diameter, carried 18 feet of oil and held about 400,000 barrels. Earthen construction was used and the reservoir was partially built into a bank for protection.

Early in 1904, the real flush production from the Kern River field had come and it was necessary to build additional reservoirs. One was oval-shaped, having been the first of this type ever built in California. It was 604 feet long, 388 feet wide, carried 25 feet of oil and had a capacity of 1,019,000 barrels. This reservoir also had dirt bottom and sides, but a clever innovation was introduced to offset the loss of oil in former types. The bottom was overcut two feet and the sides four feet, then a selected dirt was substituted for that removed below the necessary levels. The refill on the bottom and sides was carefully tamped, making the new formation much less porous than that cut away. In this way, the absorption was greatly reduced and both the bottom and sides greatly strengthened.

Cheap Oil—Cheap Storage

The construction of the early types of reservoirs in the Kern River field was affected by the price of oil. The posted price of crude dropped at one time to 10 cents per barrel, a figure which made expensive reservoirs impracticable. The cost of elaborate reservoirs would have been much greater than the value of the oil saved by having concrete bottoms. The overproduction was then thought to be only a temporary condition and it was believed that the reservoirs would be abandoned after a short usage.

The only loss considered at first was that from seepage, but it was soon discovered that evaporation of the very heavy black oil was also a factor. The loss from seepage after the ground was thoroughly soaked was much

CALIFORNIA OIL RESERVOIRS

Year	Number Built	Capacity Provided	Year	Number Built	Capacity Provided
1903	9	4,500,000	1916	1	500,000
1904	13	7,000,000	1917	3	1,500,000
1905	12	6,000,000	1918	..	.....
1906	..	.....	1919	1	1,000,000
1907	..	.....	1920	1	1,000,000
1908	..	.....	1921	..	.....
1909	2	1,000,000	1922	9	7,321,000
1910	..	.....	1923	29	30,682,000
1911	19	11,095,000	1924	2	4,850,000
1912	10	6,617,000	1925	7	12,290,000
1913	6	3,035,000	1926	3	8,750,000
1914	1	763,000	1927	..	.....
1915	1	764,000			
			Totals....	129	108,667,000

smaller than during the first year. Oil was constantly pumped into and removed from all reservoirs, making an accurate study of losses from both seepage and evaporation very difficult.

During 1905, the leading companies standardized on a reservoir 411 feet in diameter and 20 feet deep. It was of the same general construction as those built the previous year. The bottom and sides were overcut and refilled with selected, non-porous dirt. This practice continued until 1908, when the price of oil rose by leaps and bounds. The early reservoirs had been in service for five years and they were not only not near abandonment, but were more valuable than ever before.

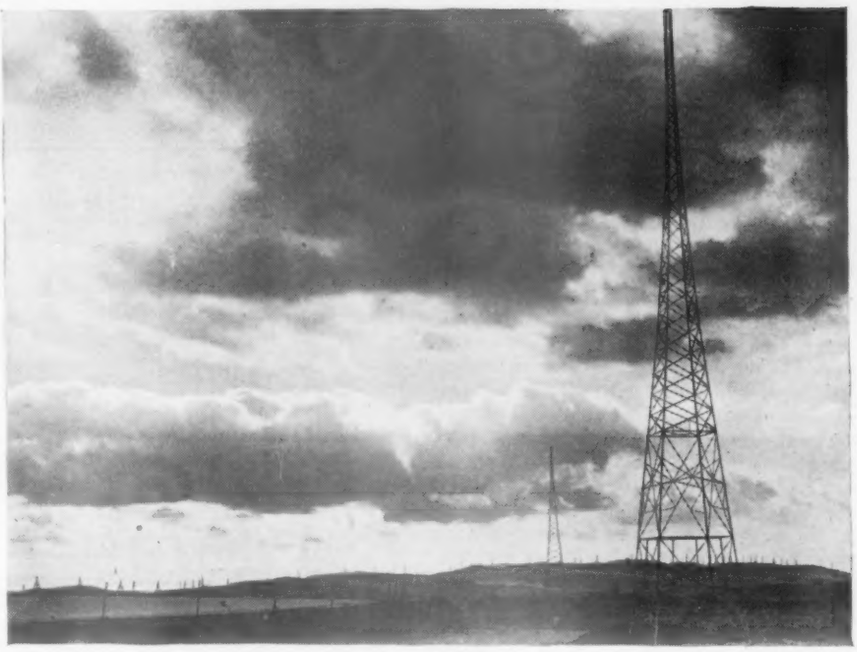
The loss from seepage had been greater than anticipated and a concrete lined reservoir became the standard. The earliest type of lined reservoir was coated with four inches of concrete but did not differ greatly from the earlier earthen types. Several were built in the Kern River field and the practice soon extended to other areas.

An attempt was made in 1910 to build an all-concrete reservoir on the ordinary tank principle. It was built entirely above the ground and embodied the cantilever wall principle of construction, instead of a type suitable for holding a pressure from within. When first filled, the reservoir failed entirely. It was a rather expensive venture, being about 600 feet in diameter.

Reservoir roofs were, from the beginning, essentially of one type. They were of wooden construction and slightly conical, sloping enough to drain properly. The earliest types were ventilated in the center, but this practice was soon discontinued.

750,000 Barrels Standard

The most up-to-date reservoirs in California do not differ materially from those used 15 years ago. The same essential principles apply, the chief objects being to make an excavation of the proper dimension, to bank it properly, to line it with concrete and to build a roof with adequate drainage. Several of the leading companies have standardized on a 750,000-barrel size with a diameter of 500 feet and a depth of 26 feet. All guesswork has been taken out of the banking, the standard inside slope being 1 1-4 to 1 and the outside slope 1 1-2 to 1. The width of the bank at the top is from 15 to 17 feet, depending upon the formation, the ground level and the likelihood of surface wash. The concrete is re-enforced and is applied with a gun to eliminate air pockets. The deeper into the ground a reservoir is built, the greater is the factor of safety.



Direct hit towers near Union Oil Company's reservoirs near Los Angeles. They take the brunt of the lightning stroke

Originally the depth of reservoirs was limited by the fact that it was not deemed safe to get foundation for a row of posts on the inner banks. Consequently, the outer row of rafters had a span from the outer row of posts, set on the bottom of the reservoirs, to bearing sills on top of the bank. In an early reservoir with a depth of 25 feet and an interior slope of 1¼ to 1, it was necessary to use these rafters 36 feet long. It was felt that this was the practicable limit for a rafter of this purpose. With the latest type of reservoirs, concrete blocks are set on the inside slope and the limit is in the depth only.

The most recent achievement in California is the completion of a 4,000,000-barrel reservoir in the Los Angeles basin. This remarkable container is 1374 feet long, 496 feet wide and 41 feet deep, making it the largest reservoir of this type in the world.

Since 1903, 129 reservoirs with a combined capacity of 108,667,000 barrels have been built. Thirteen of these have burned and several of the earlieset type have been abandoned. Many of those built as a temporary arrangement are still in service, however.

Steel storage tanks have long been popular in California and they have been improved in various ways as defects were discovered. The standard 20 years ago was a tank of 37,500-barrel capacity having a wooden deck sheathed with various felts and vapor-proof insulating materials. This size was later discarded for the 55,000-barrel type, but the construction remained practically the same. The 80,000-barrel tank soon made its appearance and it is now the standard among the largest tank farms. It is a riveted or welded type with vapor-tight, conical roof.

Network of wires over a reservoir as a protection from lightning

Steel Tank Roofs

Early experiments showed that a steel tank is only as good as its roof,

and it was on this phase of construction that most thought was given. The wooden roofs not only failed to hold the vapors satisfactorily but they were veritable fire traps during electrical storms. Steel roofs were introduced but they were not made vapor-tight for some time. During the five years prior to 1927, nearly all steel tanks were made with sealed roofs. Four types of roofs were used and each had its advantages. They were the standard cone dome, water seal and floating types. The cone type embodies simplicity but provides a comparatively large free space for vapor. The dome type has the advantage of carrying a part of the weight but it also allows a large volume of vapor to accumulate. The water seal roof is flat, dropping down from the rim of the tank to accommodate about six inches of water. It keeps the top of the liquid cool and eliminates a large part of the vapor space. The floating type of roof offers much promise but it has not been used extensively in California. It lies directly on top of the liquid at any point, practically eliminating a free vapor space. It is also regarded as an excellent fire risk.

The tank manufacturers in California are now standardizing on the new specifications set by the Division of Standardization of the American Petroleum Institute. A cone roof is being used but the pitch has been reduced to one-half inch in 12 inches from the old standard of one and one-half incheas in 12. The reduction in pitch has greatly reduced the free space for vapor accumulation. By adopting the A. P. I. standard, all tank manufacturers know exactly what is required and are enabled to place their bids accordingly. When the company calls for bids on a certain size, A. P. I., it automatically eliminates the possibility of a misunderstanding. The new specifications also reduce the number of sizes of tank sheets, making it possible to carry the necessary stocks at all times.

In the erection of large tank farms, the time element has not been a major factor. It is not unusual to complete the first tank in 30 days and subsequent ones every two weeks. By increasing the number of crews, even better records have been made.

Large Steel Storage

The largest steel tanks ever built—178,000 barrels—were completed for the Associated Oil Company. They were 175 feet and nine inches in diameter, 41 feet and six inches in height and the plates in the first course were one inch thick.

Practically every large operating company has played an important part in the construction of California's huge storage system. Some have divided their attention between reservoirs and tanks, while others have shown a preference for one type. The older companies have passed through periods requiring what was termed "temporary storage." Many of the temporary makeshift arrangements still are in use. Temporary periods of over-production were met in what seemed the most sensible manner.

The Standard Oil Company's huge storage system has a capacity of 85,363,332 barrels. This includes tanks and reservoirs for storing all petroleum products in California. The capacity of the steel storage is 37,962,999 barrels, as compared with a total reservoir capacity of 47,400,333 barrels. The latter is represented by 60 reservoirs in different parts of the State. When the first wave of over-production struck California, the Standard built a large number of reservoirs to provide a market for the surplus oil. The company purchased oil from producers who would not otherwise have had a market for their production. Although the Standard later obtained a fair price for the oil stored during the depression, the small producer was enabled to operate his lease without interruption.

Again in 1923, a huge flood of oil was released in California. Huntington Beach, Long Beach and Santa Fe Springs poured forth a stream of oil which the combined markets of the world could not absorb. This over-production caused the Standard to build a number of huge reservoirs at El Segundo, near Los Angeles. Just as the company had played an important part several years before, it helped to absorb the surplus production of 1923. The reservoirs at El Segundo included four of 500,000 barrels each, one of 800,000 barrels, four of 1,000,000 barrels each, one of 1,500,000 barrels, one of 2,500,000 barrels and three of 3,000,000 barrels each. The reservoirs are located near the company's refinery and only a short distance from a loading rack built to accommodate ocean tankers.

The Union Oil Company's storage system is very elaborate and widely scattered. The company is one of the oldest operating units in California and was a pioneer in both steel tank and reservoir construction. With a capacity of about 30,000,000 barrels, the storage system is the second largest in the State. About two-thirds of this amount is steel tankage, with earthen reservoirs accounting for the remainder.

The Pan-American Petroleum Company has made rapid strides in the construction of storage facilities, now having a capacity of 18,132,000 barrels. Steel tankage totals 5,572,533 barrels, with reservoirs accounting for 12,559,469 barrels. "Among the notable and latest additions to this storage is what can be said to be the largest concrete reservoir in the world, having a capacity of 4,032,000 barrels. The entire storage field has been provided with adequate fire protection at all points."

The California Petroleum Corporation is one of the newer companies in the State but its storage capacity has increased to 12,111,000 barrels. Steel storage accounts for 11,048,000 barrels, with earthen reservoirs a poor second with 1,063,000 barrels. The company's storage is located chiefly in the Los Angeles Basin.

The General Petroleum Corporation, now a subsidiary of the Standard Oil Company of New York, owns a very evenly divided storage system with a capacity of 15,000,000 barrels. The reservoir total is 7,000,000 barrels, with steel tankage 1,000,000 barrels greater.

The Shell Company's storage capacity in Southern California totals 14,741,000 barrels. Reservoirs have proved very popular and account for 8,350,000 barrels or considerably more than half the total capacity.

The Associated Oil Company's total capacity in Southern California alone is 5,250,000 barrels. One 1,000,000-barrel reservoir, was built at Huntington Beach, leaving steel storage to account for the remainder.

Many other companies have worthwhile storage systems, the newer organizations showing a decided preference for steel construction. Richfield, California Eastern and many smaller companies in Southern California have a combined capacity of more than 8,000,000 barrels.

The total steel storage in California approximates 100,000,000 barrels.

Fire Hazards

Light crudes formerly were stored in reservoirs, but this practice has been discontinued, due to the fire hazard and the loss from evaporation. Very heavy crudes and the heavier fractions of the lighter grades are now stored in the earthen and concrete containers.

Several disastrous fires in California have awakened the operators to the realization that every precaution must be taken. In April, 1926, the Union Oil Company lost about 8,000,000 barrels of oil stored in San Luis Obispo County when six reservoirs and 14, 55,000-barrel tanks burned after catching fire from lightning. One day later the same storm reached Orange County, 200 miles southeast, and lightning ignited three reservoirs near Brea.

An elaborate network of wires stretched back and forth across reservoirs and tanks has been found very effective in neutralizing the thunderbolt. Direct hit towers, 200 feet in height, are placed nearby to take the brunt of the bolt. The network of wires acts as a grounded conductor and prevents the accumulation of induced electrical charges on the roofs during the storms.

Ralph J. Reed, chief engineer of the Union Oil Company, says that no universal type of protection is applicable to all types of containers. For the purpose of considering them from the standpoint of lightning hazard and lightning protection, he says that storage facilities may conveniently be classed as follows:

I. above ground steel tanks.

(a) With wooden decks, sheathed with roofing felt, or combinations of roofing felt and vapor-proof or insulating materials.

(b) With wooden decks, sheathed with light-weight metallic plates.

(c) With steel roofs, not essentially tight.

(d) With "gas tight" steel roofs, provided with proper vents for relief of internal pressures.

(e) With floating roofs of the varied types now upon the market.

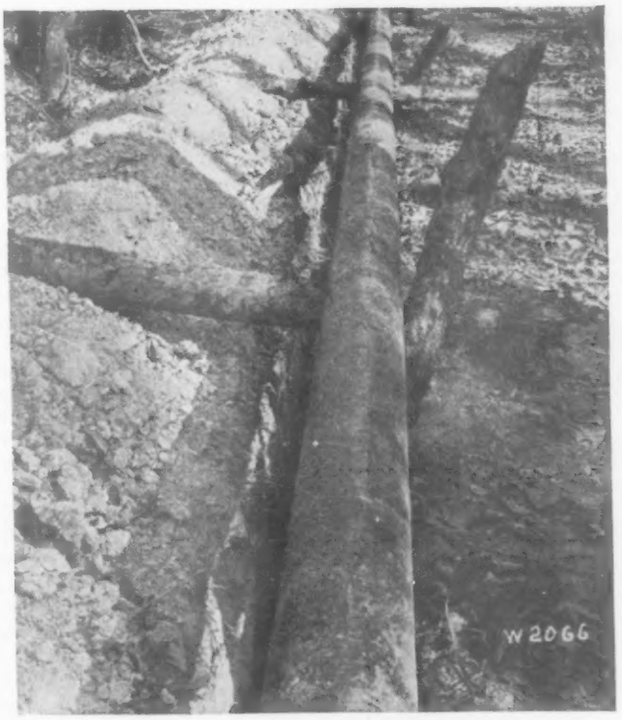
II. Underground steel tanks.

III. Concrete tanks and reservoirs.

Very little tank or reservoir construction is under way in California and few major additions are expected during the present year.

Long Arc Welded Gas Line Completed

RECENTLY the longest electric arc welded pipe line in the world was completed. It runs from Lamkin, Louisiana, to Hodge, Louisiana, a distance of 45 miles. It is seven inches in diameter throughout the entire run and carries from 600 to 1000 pounds pressure.



The line was welded by The Big Three Welding and Equipment Company of Houston. This company under the direction of B. K. Smith, its president, has been engaged in diversified welding almost since the commercial development of electric arc fusion welding was begun. For several years prior to the building of the line from Lamkin to Hodge Mr. Smith has been working experimentally on pipe line welding with the thought in mind that some day he would be called on or permitted to construct a line in that fashion.

For the past six years the pipe line people have employed oxy-acetylene welding with success. The introduction of gas welded joints was considered a radical innovation in 1921. In the beginning, oxy-acetylene welds were applied to either end of the conventional pipe couplings so there was no original economy in the process. The reason for its use was that pipe lines failed at the threads long before the body of the line had passed its usefullness.

Mr. Smith's bid was $1.25 per joint. The latter price was considered fair by The Big Three Welding and Equipment Company and in practice proved satisfactory.

The country over which the line ran was very rugged and broken. There were hills, deep ravines, woodlands and swamps. There was even a river to cross. Despite these physical obstacles the line was laid without difficulty. A total of five gas engine-driven "Stable-Arc" welders, manufactured by The Lincoln Electric Company, Cleveland, Ohio, were used. In doing the work in the field the welders, of course, operated as a team; that is, four men simultaneously welded four consecutive joints and moved on. The lengths thus formed were joined together by a bell hole operator.

The line was built in five-mile stages, each stage being finished and tested under hydrostatic or gas pressure before further pipe was laid. The joints were all made in two layers and it is interesting to note that with this construction, which was developed by Mr. Smith, but 14 pin holes occurred in 11,000 joints.

On December 15, 1927, the pipe line was finished and in the ditch. It had been tested and accepted and there only remained the work of covering it over. Two weeks later when about 20 miles still lay exposed in the trench the line was subjected to one of the severest tests, when temperature dropped to 6 above zero and nothing happened.

Companies Own Private Docks On Texas Coast

Beaumont-Port Arthur and Houston Ship Channels well equipped with docks and storage facilities for handling water shipments

By JACK LOGAN
Staff Representative

HOUSTON — From Houston to Beaumont by rail or highway is about 90 miles. It would be possible, however to board a sea-going steamer at Houston, go down the Houston Ship Channel, into the Gulf of Mexico at Galveston, up the coast through Sabine Pass to Port Arthur, through the Sabine Neches Channel into the Neches River, and thence to the municipal wharves in Beaumont, traversing a total of about 180 miles—50 miles from Houston to the coast, 80 miles up the coast, and 50 miles inland again to Beaumont.

In making such a water trip from Houston to Beaumont, and by including a short side-trip to Texas City when reaching the Galveston district, one would pass through the heart of the oil refining and oil shipping industries of the Gulf Coast; would see nearly all of the loading docks which figure materially in handling crude and refined oils from between the mouth of the Mississippi River and the southern tip of the Texas shore line; would pass by a dozen refineries, including one at Port Arthur which is said to be the largest in the world; and would see all kinds and sizes of boats transporting oil or lying alongside docks, loading or unloading; barges carrying 1000 or 1500 barrels of oil, inter-coastal boats with capacity of 25,000 barrels, and great tankers carrying 75,000 or 100,000 barrels of oil. And once in a while one may even see a sailboat that is in the service of the oil industry. Only about a week ago the Navajo, a six-masted English sailing tanker, docked at the wharves of the Humble Oil & Refining Company at Baytown, took on a cargo of 85,000 barrels of oil, and was towed down the Houston Ship Channel to hoist its sails and begin its voyage back across the Atlantic. The Navajo, however, was not relying altogether on the power of the winds. It was accompanied by a more modern sister, the Iroquois, a steam-propelled tanker. The Iroquois also took a load of 85,000 barrels of oil at Baytown, and together the two big boats started across the ocean, the Iroquois under power of steam and the Navajo sailing, but with the arrangement that in case of rough water, high wind or deficiency of wind, the Navajo would tie on behind the Iroquois and be towed until better conditions should prevail. There are, however, very few of these sail boats in use, and they are principally British.

Oil Companies Own Tankers

Although there are some oil tankers owned by steamship companies, most of them are owned and operated by the oil companies themselves. Among the tankers operating out of the Houston Ship Channel, 22 lines are represented, including lines of the Standard affiliations, the Sinclair Navigation Company, Atlantic Refining Company, Gulf Refining Company, Tidewater Oil Company and others. These tankers operate between Houston and Mexico, European ports, Canada, West Indies, South African ports, and Gulf and Atlantic ports. All of these lines are owned by oil companies, including several foreign oil concerns. The tankers owned by 13 of the lines have as their Houston agents the Humble Oil & Refining Company. Out of Port Arthur many ships are operated by the Gulf Refining Company and The Texas Company, both companies owning tankers in large numbers to take care of the shipping to and from their large refineries there. Shipments of the Magnolia Petroleum Company at Beaumont are made largely in tankers owned by the Standard Oil Company of New York, with which Magnolia is affiliated.

Among the other companies operating in the Houston-Beaumont district which own tankers are the Sun Oil Company and the Pure Oil Company. The Sun Oil Company is now operating nine tankers, moving oil from its terminals in the Beaumont and Port Arthur districts to its refinery at Marcus Hook, just outside Philadelphia. Pure Oil Company is operating several for handling refined and crude oils from its terminal and refinery at Smiths Bluff, between Beaumont and Port Arthur on the Neches River. Sinclair Oil & Refining Company, which operates a refinery on the Houston Ship Channel, uses tankers owned by the Sinclair Navigation Company; the Galena refinery at Houston sends out oils in Galena Navigation Company boats, and the Atlantic Oil Producing Company uses Atlantic Refining Company tankers.

Docks

Matching the variety in boats in making the Houston-Beaumont trip, one would find great differences in the piers at which the vessels take on or discharge their cargoes. At the refineries, of course, the best wharves would be seen. At Baytown, the Humble Oil & Refining Company has three concrete docks, one jutting out into the water, being 400 feet by 40 feet, capable of loading two of the largest size tankers at the same time; one parallel with the channel, being 600 feet long and 40 feet wide, capable of loading two ships; and the third dock being smaller and used for handling barrel goods and barges. At Port Arthur the Gulf Refining Company's docks are of concrete construction and run for about 3500 feet along the water front; and The Texas Company's docks at Port Arthur are about the same length. At its refinery and terminal near Beaumont the Magnolia Petroleum Company has concrete docks of sufficient length to accommodate seven large ships at one time.

The other refineries are smaller and have less expensive docks, being built of wood, on foundations of creosoted piling. This type of dock is also used at the

One of Humble's concrete docks at Baytown; tanker on one side being loaded

Vacuum's loading wharf at Lockport, Louisiana

various terminals where nothing but crude oil is loaded, and varies in length from 20 or 25 feet up.

Some of the docks are equipped with vapor-proof electric lights, which are light bulbs covered with a second air-tight glass globe, which in turn is protected by a cast-iron lattice work, to reduce the possibility of its being broken. Where the vapor-proof lights are not used, the flood-lighting system, lighting up the docks with powerful searchlights set back at a safe distance, is utilized. The Sun Oil Company uses flood lights at Sun, its principal crude oil terminal, located on the Neches River. Crude oil and other heavy oils are handled as well at night as in daylight; but since lights must be used, some of the more explosive oils are never handled at night.

When a boat comes alongside a dock to receive oil, one or more hose, depending on the facilities of the docks and the boat, must be connected up. The hose vary in size, some being as much as 12 inches in diameter, and are very heavy and more or less hard to handle. For moving them, the dock is usually equipped with booms and cranes, and in addition the tankers are provided with cranes. Those on the dock, however, do the burden of the work.

There is practically no evaporation in loading or unloading the oil, and only a negligible amount while the shipment is in transit, as the time is not great at the longest, and furthermore, the evaporation at sea is slight. The tanker is provided with ventilators very much like those on steel storage tanks.

Loading Pumps

Usually the tanks from which the boats are loaded are near the docks; and practically all loading is done by centrifugal pumps, which handle large volumes of oil at low pressure, ordinarily about 50 pounds. In order to perform at their best, they must be near the tanks from which they are moving the oil so as to have short suction, and have pipe line connection with them which will furnish ample supply. Ordinarily two of these pumps are used in loading a ship. When a dock is used for a crude terminal and for a refinery, the pumps are sometimes located in pump houses of the refinery proper. Usually, however, the centrifugal pumps are in special stations near the tanks.

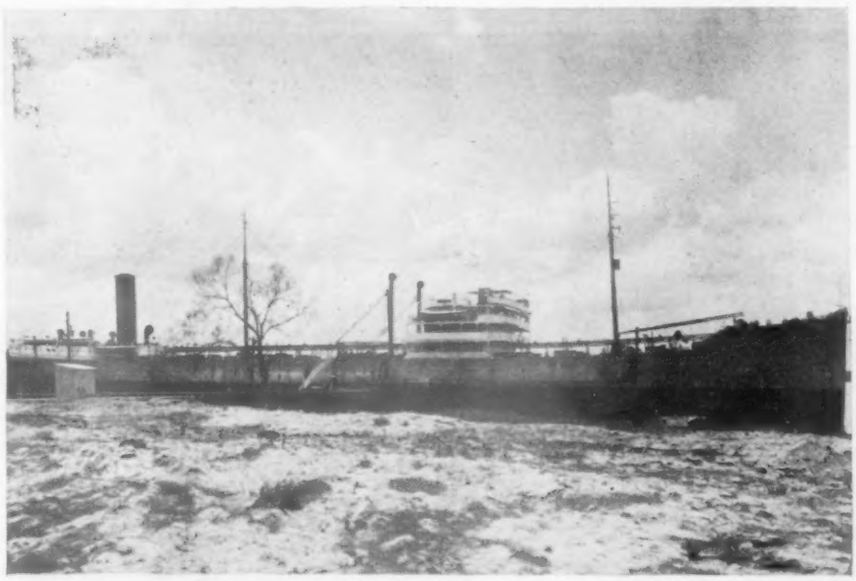
The Sun Oil Company has a typical arrangement at its crude oil terminal at Sun. The station there is approximately at the center of a tank farm which consists of 12 steel storage tanks of 80,000 barrels capacity; and is about one-half mile from the company's loading docks on the river. The station is equipped with two Goulds centrifugal single-stage pumps, driven by 150-horsepower General Electric motors. Each pump ordinarily moves about 3500 barrels of oil to the docks per hour. Suction lines from the storage tanks to the pump station are brought together in one room of the station in a manifold arrangement which permits pumping from all of the various tanks. It would be possible to pump from all of them at the same time. Usually the oil is pumped from two tanks at a time. Leading to the dock are two pipe lines, one a 12-inch and the other a 10-inch. The number of lines leading to the docks varies with the terminals. Some docks have different lines for different grades of oil; and at the refineries, of course, there are usually more lines. The average terminal at which there is no refinery has two or three lines.

Various makes of centrifugal pumps are being used at the various terminals, including the Worthington, Dayton Dowd, Cameron, Allis-Chalmers, and Goulds. Both the Neches-Sabine district and the Houston Ship Channel district are along electric high lines, and practically all the power for pumping oil aboard the tankers is electrical.

Since the Gulf Coast terminals are located as a rule on fairly level ground only a few feet above the level of the water course, gravity does not exert much influence in moving the oil. It is said that tankers are loaded at San Pedro, California, altogether without the use of pumps, as the storage tanks from which they are loaded are high above the water on hill sides making possible unusually rapid loading simply by opening up the lines and letting the oil fall through them. In the Gulf Coast country, however, the pump station is not far above the level of the docks, and the pressure which the gauge on the line in the station shows when the storage tanks furnishing the oil are full is only about 10 pounds.

Storage at Terminals

The most generally approved storage tanks for terminals now are those with 80,000 barrels capacity. There are three important advantages which they have over tanks holding 55,000 barrels or less. In the first place, their cost per barrel of capacity is approximately 20 per cent. lower. In the second place, they are taller, being about 40 feet high as compared with 28 feet of height for the 55's, thus affording 12 feet more of head in forcing the oil to the pumps in loading the boats—and that additional 12 feet is up high, where it counts. The third, and a

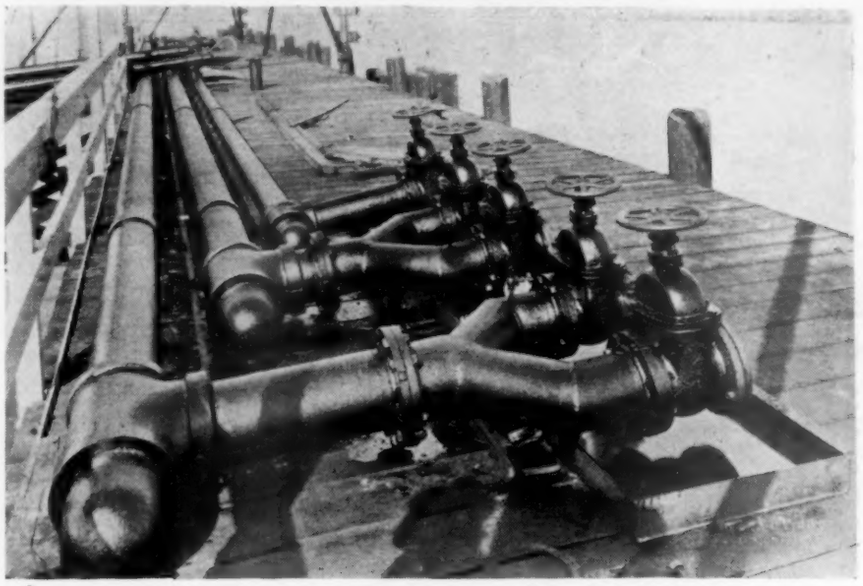


The J. N. Pew, 100,000-barrel tanker of Sun Oil Company taking cargo at Sun on Neches River

very important advantage, is that an 80,000-barrel tank will fill an average-sized tanker, while if the oil were being drawn from 55's, two tanks would have to be drawn upon; this is an important consideration in cases where various grades of oil are in storage, and it is desired to load a full cargo out of one tank.

The rate at which the tankers are loaded varies considerably, depending on the type or size of the pumps, proximity of the pump station to the tanks and to the docks, layout of the pipes, rapidity with which the boat can take the oil, and the viscosity of the oil that is being handled. From 5000 to 8000 barrels per hour is considered a fair loading rate. At that rate a large ship can be loaded in about 12 hours.

Among the boats loaded recently at Smiths Bluff by the Pure Oil Company was one on which 80,000 barrels of crude was loaded in 14 hours. The Yount-Lee Oil Company, which is credited with having one of the most efficient loading systems in the Gulf Coast, recently loaded 94,000 barrels of crude oil on the J. N. Pew, a Sun Oil Company tanker, in 10 hours, an average of nearly 10,000 barrels per hour. The Yount-Lee station uses two electrically driven centrifugal pumps, and has three pipe lines connecting with the docks on the Neches, two 10-inch and one eight-inch. At Lockport, Louisiana, whence tankers move through the Intracoastal Canal into the Sabine Neches Canal, the Vacuum Oil Company has loaded as much as 5800 barrels per hour, with only one 12-inch line leading to the docks. The Gulf Refining Company has a dock at Lynchburg on the Houston Ship Channel where the oil is loaded on small intercoastal boats by means of two plunger-type pumps through one 10-inch and one six-inch line with this equipment loads about 2500 barrels per hour. At Baytown the Humble Oil & Refining Company can load from 2000 to 12,000 barrels per hour, depending on the grade of oil and the lines used, the average for the terminal being around 5000 barrels per hour. At Texas City several companies have terminals, and these docks are noted for the rapidity with which they load tankers. Humble Oil & Refining Company uses two centrifugal pumps there and can easily load 15,000 barrels of some grades of oil per hour, and has loaded as much as 18,000 barrels. Incidentally, Humble has a terminal at Ingleside near Corpus Christi, where it loads around 12,000 barrels of West Texas crude per hour; and in the same district, at Harbor Island, is now building a terminal which will use three centrifugal pumps and have a loading capacity of 30,000 barrels per hour, due to special, efficient layout of lines and pumps. It is due to be completed late this summer, and like the Ingleside terminal, will handle West Texas crude.



Where hose are connected at Yount-Lee docks

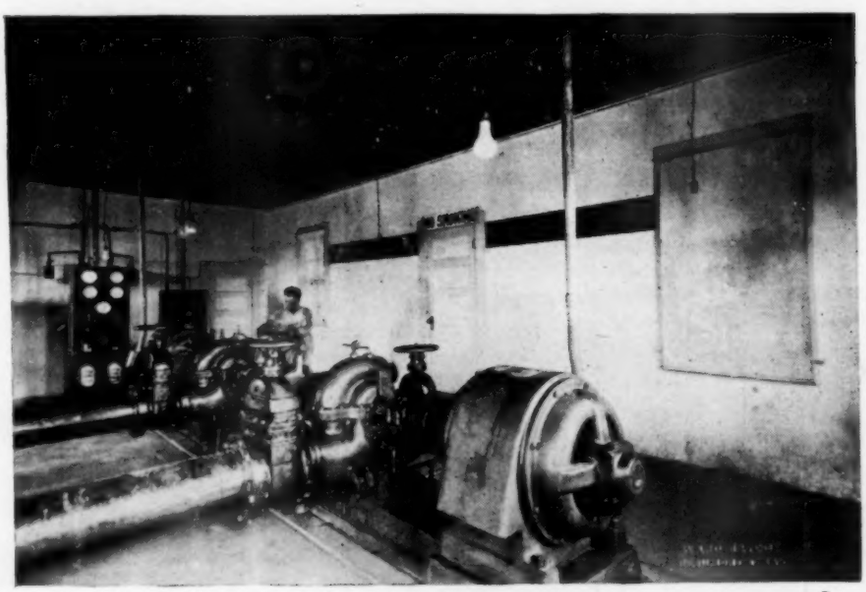
Gravity Effects Loading

High gravity oils ordinarily can be handled fast. Heavy oils cannot be moved so fast, and very explosive oils must be handled somewhat slow for the sake of safety. Although it is never necessary in the Gulf Coast to resort to heating, there is a marked difference in the loading rate in the summer and winter. The viscosity of the oil is a particularly determining factor in the loading rate. At its terminal at Sun, the Sun Oil Company can load Grade "A" Gulf Coast crude of 21 degrees gravity, 1000 Saybolt universal viscosity, at the rate of about 5000 barrels per hour; while it can load some of the Spindle Top oil, of 30 degrees gravity, 65 Saybolt universal viscosity, at the rate of nearly 8000 barrels per hour.

The operating cost of one of these water terminals is comparatively small, consisting chiefly of the expense of running the centrifugal pumps and the labor costs at the pump station. The ultimate cost, however, will depend also on the amount of the investment; and the investments at the various terminals varies considerably.

At Sun the Sun Oil Company's docks are comparatively inexpensive, being small and of wooden construction. But due to the condition of the river at the particular point in a bend of the stream where the terminal is located, it was necessary to dredge out a slip to accommodate the tankers. The slip, or canal, is 750 feet long. 125 feet wide and 30 feet deep. The dock is alongside the slip, and a boat in loading backs into the slip, and is headed down stream in leaving the terminal.

The cost of the dock of the Yount-Lee Oil Company was approximately $250,000, including the pump station, the lines leading to the dock, a shell road about a quarter of a mile long, built from the station to the river, and the wharf itself, together with the equipment on it. The cost, however, is exclusive of the land that is being used.



Interior of Yount-Lee's river station, showing motors and centrifugal pumps used in loading tankers

Yount-Lee Terminal

Because of its efficiency, and as it is a good example of a terminal devoted strictly to the loading of crude oil, the Yount-Lee terminal will be described in detail.

It is located on the Neches River five miles below the city docks at Beaumont,

(Continued on page 97)

General Principles Covering Tank Design and Construction

By GEORGE HORTON

THE mechanical fact that uniform internal pressure tends to preserve a circular form is the fundamental reason for building round tanks. That the force tending to rupture a cylinder subject to internal pressure is equal to the pressure multiplied by the radius is another proven theorem and forms the basis for determining the strains in all tank shells.

Stresses and Plate Thicknesses

The pressure obtaining in most tanks is equal to the height of the tank multiplied by the weight of the oil or liquid contained therein. The pressure, of course, varies from nothing at the top to a maximum at the bottom of the tank, and as the strains in the shell vary as the pressure, by the theorem recited, they also are a maximum at the bottom and nothing at the top. Put more concretely, the strain in pounds in a band one inch wide at any point in the tank is equal to the height in feet from the level of the band under consideration to the top of the tank multiplied by the diameter in feet multiplied by 2.6 multiplied by the specific gravity of the contained liquid.

The usual method of determining the thickness of plates required in a tank is to decide first upon the number of rings of which the tank is to be composed, then compute the strain in a band at the bottom of each ring by the rule expressed. Having made such computations, we divide the strains so obtained by the strain we deem it proper to allow per square inch in steel. This result will give the net thickness required of each ring which must be corrected to actual thicknesses by dividing net thickness by the efficiency of the riveted joints which connect the plates of each ring, one to the next.

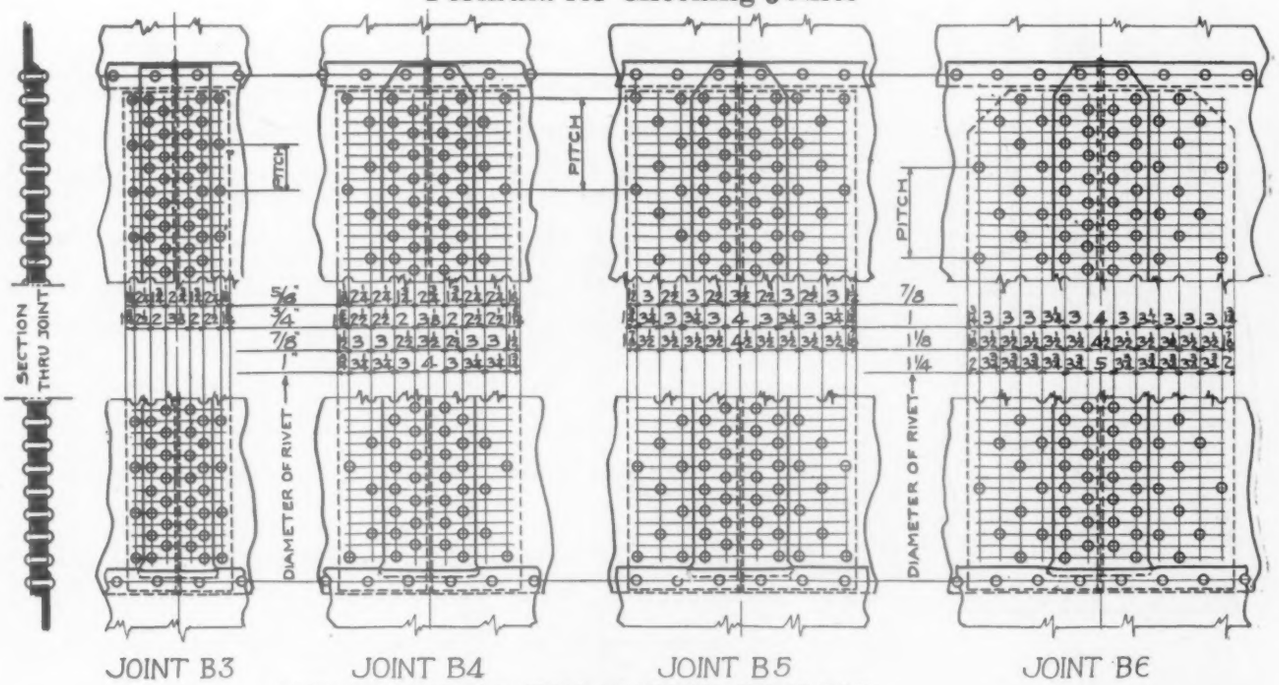
The average ultimate strength of steel plates used in tank construction is about 60,000 pounds per square inch. Its elastic limit is about half of the ultimate, rather more than less. All authorities agree that steel should never be strained to its elastic limit, and it is for this reason that steel designers do not talk in terms of factor of safety. A factor of safety, so called, refers only to the ultimate strength. No sane steel designer would build using a factor of safety of two, which on first thought might seem a liberal allowance and would mean that the structure was strong enough to withstand twice the load for which it was designed. A factor two would correspond to a unit strain of 30,000 pounds per square inch, equal to the elastic limit which should never be exceeded and never even very nearly approached.

Allowed unit strain is the term used and in which the steel designer thinks. In a general way it varies from 15,000 to 22,000 pounds per square inch, depending upon the character of the loading to which the structure is to be subjected. Where strains are not entirely determinate or where loads are suddenly applied involving shock and vibration, lower unit strains are employed than where such uncertainties do not exist. Thus we use lower unit strains in a bridge where the structure is subject to shock than we do in, say, a water tank. We use lower unit strains in a water tank than we do in an oil tank because a water tank is more liable to deteriorate from corrosion and in many cases strains are indeterminate due to ice formation.

Joint Design

Riveted joints must be carefully designed and without such tables as are given in this article much labor is involved in working them out correctly. The greatest efficiency is obtained when the strength of the rivets in the joint is just equal to the strength of the plate remaining after deducting the amount cut out by the rivet holes. The tables have been prepared on this principle and any departure therefrom without recalculation and redesign will weaken the connection. Thus if more rivets or larger rivets are used in any joint illustrated, the rivet strength is of course increased but the plate

Formula for Checking Joints



NARROW BUTT STRAP IS ALWAYS ON CAULKING SIDE OF TANK.

FIGURE 1

strength is reduced, with consequent loss; and if smaller rivets or less rivets are used, the plate strength is increased but the rivets are insufficient.

The tables were prepared on the assumption agreed to by most authorities that the strength of rivet material in shear is equal to three-fourths the strength of the plate in tension; also, that the bearing value of a rivet is one and one-half times the tensile strength of a plate.

Lap joints should not be used when the thickness of plates is greater than one-half inch. There is a certain bending action incurred when strains are transmitted through lapped joints which are of slight importance under the limit of one-half inch prescribed. This bending factor increases with thickness of material used and hence when strains require heavier metal, always connect with butt strap joints in which the bending factor is eliminated. It is a fortunate fact that while the use of butt strap joints involves more labor, the cost of the additional labor is practically offset, as thinner plates may be used to obtain the net thickness desired, the efficiency being greater and net thickness being equal to actual thickness multiplied by efficiency.

If the plates in a tank are staggered so that the joints in any ring are placed opposite the center of the plates in the rings immediately above or below, the efficiency of the joints as shown in the tables given is increased by approximately one-half the difference between the efficiency shown and unity.

It is surprising to note the number of tanks built with riveted joints carelessly designed. A common mistake is to space rivets some convenient even distance to simplify manufacture—a practice to be avoided because comparatively slight variations from correct pitch cause great differences in joint efficiency. Another error is to find different thicknesses of plates connected with exactly the same riveting. The result, of course, being that if the thinner plate is correctly jointed the thicker is no stronger and, if the thick one is proportioned correctly, the thin one is unnecessarily weakened. Another important factor governing rivet joint design is to limit the pitch of rivets to approximately eight to ten thicknesses of plates connected so that the plates may be caulked. When the pitch of rivets is too great,

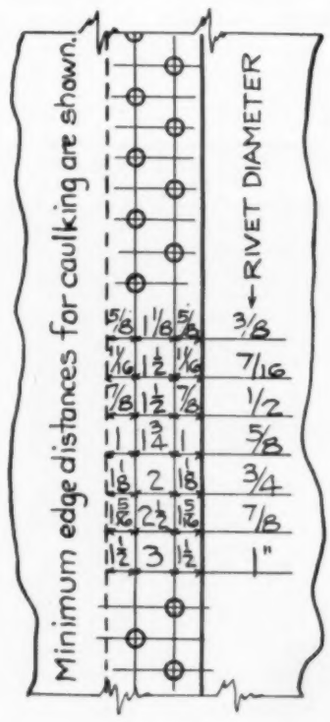


FIGURE 2

Distance between rivet lines and edge distances

Formulas for Checking Joints

Below are shown useful formulas for checking butt-strap joints. In connection with same, reference should be made to Figure 1.

Check values in joint B4 net thickness equals .469 Efficiency equals 94%.
4 rows ⅞" rivets—½" plate Pitch equals 15.3.
P equals Pitch equals 15.3"
d equals Dia. of rivet plus 1/16 equals .9375.
a equals Area of rivet plus 1/16 equals .6903.
t equals Thickness of shell plate equals .50.
b equals Thickness of wide butt strap equals .375.
S equals Shear equals .75; T equals Tension equals 1.00; B equals Bearing equals 1.50.

(1) Strength of the net thickness of plate between the rivets in the outer row equals (P—d) tT equals (15.3—.9375) times .50 times 1 equals 7.18.

(2) Strength of the net thickness of plate between the rivets in the third row added to the shearing strength of the three rivets in the outer rows equals (P—4d) tT plus 3aS equals (15.3—4 times .9375) times .50 times 1 plus 3 times .6903 times .75 equals 7.33. (Not effective when "b" is less than .393 "d" in which case (3) governs.)

(3) Strength of the net thickness of plate between the rivets in the third row added to the crushing strength of the strap in front of the rivets in the outside rows equals (P—4d) tT plus 3 bd B. (Not effective when "b" is greater than ".393 d" in which case (2) governs.)

(4) Shearing of all rivets in single and double shear, equals 8a2S plus 3aS equals 8 times .6903 times 2 times .75 plus 3 times .6903 plus .75 equals 9.84.
(Not effective when "t" is less than .785 "d" in which case (6) governs.)

(5) Crushing of plate or strap in front of all rivets, equals 8tdB plus 3bdB equals 8 times .50 times .9375 times 1.5 plus 3 times .375 times .9375 times 1.5 equals 7.21.
(Not effective when "t" is greater than .785 "d" in which case (4) governs.)

(6) Crushing strength of the plate in front of the rivets in the inner rows that are in double shear and shearing of the rivets in the outer rows that are in single shear, equals 8tdB plus 3aS equals 8 times .50 times .9375 times 1.5 plus 3 times .6903 times .75 equals 7.18.
(Not effective when "t" is greater than .785 "d" in which case (4) governs.)

(7) Strength of the net thickness of plate between rivets in the second row plus the shearing strength of one rivet in single shear in the outer row,
equals (P—2d) tT plus 1 Sa equals (15.3—2 times .9375) times .50 times 1 plus 1 times .75 times .6903 equals 7.23.
(Not effective when "b" is less than .393 "d" in which case (8) governs.)

(8) Strength of the net thickness of plate between rivets in the second row plus the crushing strength of butt strap in front of the one rivet in the outer row,
equals (P—2d) tT plus dbB equals (15.3-2 times .9375) times .50 time 1 plus .9375 times .375 times 1.5 equals 7.24.
(Not effective when "b" is greater than .393 "d" in which case (7) governs.)

Net Thickness equals smallest value from above divided by "P" equals 7.18 equals .469.

15.3

Efficiency equals smallest value from above divided by "Pt" equals 7.18 equals 94%,

15.3 times .5

or, net thickness divided by plate thickness equals .469 equals 94%.

.5

caulking action instead of up-setting the edge of the plate as desired will often tend to spread them apart and endless labor, under such circumstances, is often required to make a tank tight.

Application of Lap and Butt Joint Efficiency Tables

Table 1, given with this article is a "Lap-Joint Efficiency Table."

Table 2, likewise given herewith, is a "Butt-Joint Efficiency Table."

These tables are used in connection with determining the thickness of plate in any ring, and the riveting and efficiency of the joints in that ring.

First, the effective net thickness of plate required at a joint is determined by a formula of this form:

Net thickness equals $\frac{2.6 \times H \times D \times G}{S}$,

where,

S equals Allowable unit stress in pounds per square inch.
H equals Head of liquid in feet.
D equals Diameter of tank in feet.
G equals Specific gravity of liquid.

Having found the net thickness we refer to the tables of lap and butt joints and select a joint which corresponds closely to our net thickness. The choice made will give the actual thickness of the shell plate, number of rows, diameter and pitch of the rivets and the efficiency of the joint.

A single riveted lap joint is most economical when about 40 per cent efficient and a lap joint of two or more rows is best when the efficiency is between 65 and 75 per cent. Butt joints should be approximately 90 per cent efficient to be economical.

Horizontal joints connecting adjacent rings are not subject to the strains incurred by the vertical joints and except in very rare cases may be single riveted. The size of rivets in horizontal joints is generally the same as used in the vertical joints. Their pitch is usually greater but must never exceed the caulking rule stated above.

It often happens that two or more joints shown in the table will give essentially the same net results. It is generally best in such cases to favor the one with the greater number of smaller rivets.

Caulking

Caulking of tank bottoms is always done on the inside of the tank. The shell and roof of oil tanks are always caulked on the outside. Shells of wa-

TABLE 1
Lap-Joint Efficiency Table

Weight of Plate	Thickness of Plate inches	Rivets Diameter	Rivets Rows	Rivet Pitch inches	Efficiency of Joint in Per cent	Effective Net Thickness of Plate	O—Oil only W—Water only
			1	1.12	42.9	.074	
		3/8	2	1.40	68.8	.118	
			1	1.31	50.0	.086	
			1	1.50	43.6	.075	W
7.0125	11/64	7/16	2	1.55	67.8	.116	O
			2	1.72	71.0	.122	W
			1	1.50	57.0	.098	
		1/2	2	1.72	63.8	.110	W
			2	1.55	59.6	.102	O
			1	1.12	39.3	.074	
		3/8	2	1.32	67.0	.125	
			3	1.76	75.0	.141	W
			3	1.69	74.2	.139	O
			1	1.31	46.0	.086	
			1	1.50	40.1	.075	
7.65	3/16	7/16	2	1.70	70.6	.133	
			3	1.88	73.5	.138	W
			3	1.69	70.4	.132	O
			1	1.50	52.4	.098	
		1/2	2	1.88	66.8	.126	W
			2	1.69	63.0	.118	O
			1	1.31	39.4	.086	
			1	1.50	34.4	.075	
		7/16	2	1.53	67.4	.147	
			3	1.75	71.5	.156	
8.925	7/32	1/2	1	1.50	45.0	.098	
			2	1.98	68.0	.149	
			1	1.88	56.0	.122	
		5/8	2	2.19	65.8	.144	W
			2	1.97	62.0	.135	O
			1	1.31	30.6	.076	
		7/16	2	1.37	59.0	.150	
			3	1.77	68.0	.170	
			1	1.50	39.3	.098	
			2	1.80	65.4	.163	
10.2	1/4	1/2	3	2.39	73.9	.185	W
			3	2.25	72.2	.180	O
			1	1.88	49.0	.122	
		5/8	2	2.50	70.0	.175	W
			2	2.25	66.7	.167	O
			1	1.50	34.9	.098	
		1/2	2	1.67	62.7	.176	
			3	2.20	71.4	.200	
11.47	9/32		1	1.88	43.5	.122	
		5/8	2	2.39	68.4	.192	
			3	2.81	73.3	.206	W
			3	2.53	70.4	.198	O
			1	1.50	31.4	.098	
			2	1.57	60.0	.187	
		1/2	3	2.04	69.2	.216	
			4	2.50	75.0	.235	
			1	1.88	39.2	.122	
			2	2.22	66.3	.207	
12.75	5/16	5/8	3	2.96	74.6	.233	W
			3	2.81	73.4	.229	O
			1	2.25	47.1	.147	
		3/4	2	3.00	70.8	.221	W
			2	2.81	69.0	.215	O
			1	1.88	35.6	.122	
			2	2.09	64.0	.220	
		5/8	3	2.76	72.7	.250	
			4	3.43	78.1	.268	W
			4	3.09	75.7	.260	O
14.02	11/32		1	2.25	42.8	.207	
		3/4	2	2.80	68.8	.237	
			3	3.44	74.5	.256	W
			3	3.09	71.6	.246	O
			1	1.88	32.7	.123	
			2	1.98	61.5	.231	
		5/8	3	2.59	71.0	.266	
			4	3.20	76.7	.288	
			1	2.25	39.3	.147	
			2	2.64	66.9	.251	
15.3	3/8	3/4	3	3.53	75.2	.282	W
			3	3.38	74.1	.278	O
			1	2.63	45.8	.172	
		7/8	2	3.40	70.7	.265	W
			2	3.38	70.4	.264	O
			2	1.88	60.3	.245	
		5/8	3	2.45	69.3	.282	
			4	3.02	70.5	.286	
			1	2.25	36.3	.147	
16.57	13/32	3/4	2	2.51	65.1	.264	
			3	3.32	73.7	.299	
			4	4.06	78.5	.319	W
			4	3.66	76.0	.309	O
		7/8	1	2.63	42.3	.172	
			2	3.22	68.9	.280	
			1	2.25	33.7	.147	
		3/4	2	2.39	63.4	.277	
			3	3.15	72.2	.316	
			4	3.90	77.6	.340	
17.85	7/16		1	2.63	39.3	.172	
		7/8	2	3.03	67.1	.294	
			3	4.09	75.6	.331	W
			3	3.94	74.6	.326	O
			2	2.29	61.8	.290	
		3/4	3	3.00	70.8	.332	
			4	3.70	76.4	.358	
19.12	15/32		1	2.63	36.6	.172	
			2	2.92	65.9	.309	
		7/8	3	3.89	74.2	.348	
			4	4.69	78.7	.369	W
			4	4.22	76.3	.358	O

TABLE 1—Contined
Lap-Joint Efficiency Table

Weight of Plate	Thickness of Plate inches	Rivets Diameter	Rivets Rows	Rivet Pitch inches	Efficiency of Joint in Per cent	Effective Net Thickness of Plate	O—Oil only W—Water only
			2	2.25	58.9	.294	
		3/4	3	2.86	69.5	.347	
			4	3.53	75.2	.376	
20.4	1/2		2	2.80	64.4	.322	
		7/8	3	3.71	72.9	.364	
	*		4	4.61	78.3	.391	W
			4	4.50	77.8	.389	O
			2	2.25	55.4	.294	
		3/4	3	2.75	68.2	.362	
			4	3.37	74.0	.393	
21.67	17/32		2	2.70	63.0	.335	
		7/8	3	3.55	71.8	.381	
			4	4.41	77.2	.410	
			2	2.25	52.4	.295	
		3/4	3	2.63	66.9	.376	
			4	3.22	72.9	.410	
22.95	9/16		2	2.63	61.1	.344	
		7/8	3	3.40	70.8	.398	
			4	4.21	76.2	.429	
			2	2.25	49.6	.294	
		3/4	3	2.55	65.7	.390	
			4	3.11	71.9	.427	
24.22	19/32		2	2.63	57.7	.343	
		7/8	3	3.27	69.5	.413	
			4	4.02	75.2	.447	
			2	2.25	47.1	.294	
		3/4	3	2.47	64.5	.403	
			4	3.00	70.8	.433	
25.5	5/8		2	2.63	55.0	.344	
		7/8	3	3.16	68.5	.428	
			4	3.89	74.2	.464	
			2	2.25	44.9	.295	
		3/4	3	2.39	63.4	.416	
			4	2.90	69.8	.458	
			5	3.40	74.3	.488	
26.77	21/32		2	2.63	52.4	.344	
			3	3.03	67.1	.440	
		7/8	4	3.71	73.1	.480	
			5	4.39	77.2	.507	
			2	2.25	42.8	.294	
		3/4	3	2.32	62.3	.428	
			4	2.80	68.8	.473	
			5	3.28	73.4	.505	
28.05	11/16		2	2.63	50.0	.344	
		7/8	3	2.97	66.2	.455	
			4	3.62	72.5	.498	
			5	4.28	76.6	.527	
			2	2.25	41.0	.294	
		3/4	3	2.26	61.3	.441	
			4	2.72	67.8	.487	
			5	3.18	72.5	.521	
29.32	23/32		2	2.63	47.8	.344	
		7/8	3	2.88	65.4	.470	
			4	3.51	71.5	.514	
			5	4.14	75.8	.545	
			2	2.25	39.3	.295	
		3/4	3	2.25	58.9	.442	
			4	2.64	66.9	.502	
			5	3.08	71.6	.537	
30.6	3/4		2	2.63	45.8	.344	
		7/8	3	2.80	64.4	.483	
			4	3.40	70.7	.530	
			5	4.00	75.1	.563	

*High efficiency butt strap joints are recommended for plates more than ½" in thickness.

Nomenclature

Weight of plate:—Given in pounds per square foot.
Thickness of plate:—Plate thicknesses are nominal only
Rivet diameter:—Diameter before driving.
Rivet rows:—Number of rows of rivets in a joint.
Rivet pitch:—Distance between centers of rivets along outside row of rivets.
Efficiency of a joint:—The ratio which the strength of a rivet joint has to the same unit length of the solid plate.
Effective net thickness:—The product of the efficiency of a joint times the plate thickness. This, in the table, is given in square inches per lineal inch of a joint.

"O"—Oil "W"—Water

Calculations sometimes result in a pitch greater than the maximum allowed for caulking. In this case the caulking pitch governs.

For oil tanks the rivet pitch should not exceed eight times the thickness of the thinnest plate for one row of rivets and nine times, for two or more rows.

For water tanks the pitch should not exceed ten times the thickness of the thinnest plate.

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ter tanks are often inside caulked. Outside caulking admits the possibility of recaulking leaks without draining the contents of the tank. Inside caulking prevents the liquid from entering into the overlap of the plates, is generally more accessible during construction and therefore favored in small tanks where emptying the contents is of no particular consequence.

Details of Construction

The shell and bottom of tanks are connected by means of an angle, the size of which must be sufficient to allow the rivets in it to be easily driven. There is no fixed rule about its thickness, but it is generally made equal to or a little less than the thickness of the bottom ring. This angle particularly the splices in it, is always more or less troublesome to fit, rivet and caulk. The splices are made by means of a wrapper plate that passes outside of the angle and inside of the first ring and bottom. Great care must be exercised by the workmen at this point. The wrapper plate must be tapered off to a knife edge at each end to permit of continuous caulking edges; a troublesome piece at best, and for this reason the angle should be made as long as reasonably possible, 35 to 40 feet being about the limit that can be handled. The same consideration applies to the top angle, particularly when it connects the shell to a steel roof.

Oil tanks generally rest directly upon the ground, no concrete or other form of foundation being used. The height of the tank, of course, determines the pressure upon the soil. Care and judgment should be used in the choice of a location to make certain the ground is not too soft to sustain the load. Settlement, particularly unequal settlement, may cause local overstrains in parts of the tank and consequent leakage.

Grades, so called, should be carefully stripped and leveled. The center may be made a trifle higher than the outside, but it is essential that the surface that will come under the tank shell be level; otherwise, the tank during its construction will not remain circular in form and make it difficult, if not impossible, to fit the roof plates and roof framing. A slatternly constructed grade is almost certain to reflect itself later in time and trouble.

Roof plates should be completely fabricated the same as the bottom. Some manufacturers do not attempt to punch the outside plates of the roof where they connect to the top angle, on the theory that they will not fit in any case. They will fit if the tank is round and the framing should be so constructed that as it is put into place it will tend to force the top of the tank into a true circle. If, on account of faulty grades, the roof plates cannot be all put into position and it be found necessary to repunch them in the field, only a portion of them need be reworked.

A volume would be necessary to describe in detail all the features pertaining to even simple tank construction. We have endeavored in this little resume to point out only a few of the more salient features.

BUTT JOINT EFFICIENCY TABLE

PLATE		Rivet Diameter	Type of Joint	Pitch of Rivets in Outside Row (in.)	Efficiency of Joint Percent	Effective Net Thickness	Narrow Butt Strap (inches)	Wide Butt Strap (inches)
Weight Per Sq. Ft.	Thickness							
15.30	3/8	5/8 5/8	B3 B4	5.5 11.2	87.5 93.5	.328 .350	8½x5/16 8½x5/16	13 x5/16 17½x5/16
16.57	13/32	5/8 5/8	B3 B4	5.5 11.0	87.5 93.5	.355 .380	8½x5/16 8½x5/16	13 x5/16 17½x5/16
17.85	7/16	3/4 3/4	B3 B4	6.6 13.2	87.8 93.9	.384 .410	9¾x3/8 9¾x3/8	14¾x5/16 19¾x3/8
19.12	15/32	3/4 3/4	B3 B4	6.5 13.0	87.5 93.7	.410 .439	9¾x3/8 9¾x3/8	14¾x3/8 19¾x3/8
20.40	1/2	3/4 7/8	B4 B4	13.0 15.3	93.0 94.0	.465 .469	9¾x7/16 11½x7/16	19¾x3/8 23½x3/8
21.67	17/32	3/4 7/8	B4 B4	13.0 15.1	91.8 93.8	.488 .498	9¾x7/16 11½x7/16	19¾x7/16 23½x7/16
22.95	9/16	3/4 7/8	B4 B4	13.0 15.0	91.0 93.4	.512 .525	9¾x7/16 11½x7/16	19¾x7/16 23½x7/16
24.22	19/32	7/8 1	B4 B4	15.0 17.1	92.3 93.8	.549 .557	11½x7/16 13½x7/16	23½x7/16 26½x½
25.50	5/8	7/8 1	B4 B4	15.0 17.0	91.5 93.6	.572 .585	11½x7/16 13½x7/16	23½x½ 26½x½
26.77	21/32	7/8 1	B4 B4	15.0 17.0	90.8 92.9	.595 .610	11½x7/16 13½x7/16	23½x½ 26½x½
28.05	11/16	7/8 1	B4 B4	15.0 17.0	90.0 92.1	.619 .634	11½x7/16 13½x7/16	23½x½ 26½x½
29.32	23/32	7/8 1	B4 B4	15.0 17.0	89.4 91.2	.641 .656	11½x½ 13½x½	23½x9/16 26½x9/16
30.60	3/4	7/8 1	B5 B5	15.7 18.3	92.5 93.3	.694 .700	11½x½ 13½x½	28½x9/16 32½x5/8
31.87	25/32	7/8 1	B5 B5	15.1 18.1	92.0 93.0	.718 .726	11½x9/16 13½x9/16	28½x5/8 32½x5/8
33.15	13/16	7/8 1	B5 B5	14.6 18.0	91.6 92.8	.744 .754	11½x9/16 13½x9/16	28½x5/8 32½x5/8
34.42	27/32	7/8 1	B5 B5	14.1 17.6	91.1 92.4	.767 .778	11½x9/16 13½x9/16	28½x11/16 32½x11/16
35.70	7/8	7/8 1	B5 B5	13.7 17.2	90.7 92.0	.793 .804	11½x9/16 13½x9/16	28½x11/16 32½x11/16
36.97	29/32	1 1⅛	B5 B5	16.7 20.5	91.6 93.0	.830 .843	13½x9/16 15¼x9/16	32½x¾ 36¼x¾
38.25	15/16	1 1⅛	B5 B5	16.2 20.0	91.2 92.7	.855 .867	13½x9/16 15¼x5/16	32½x¾ 36¼x¾

PLATE		Rivet Diameter	Type of Joint	Pitch of Rivet in Outside Row (in.)	Efficiency of Joint Percent	Effective Net Thickness	Narrow Butt Strap (inches)	Wide Butt Strap (inches)
Weight Per Sq. Ft	Thickness							
39.52	31/32	1 1⅛	B5 B5	15.7 19.5	90.8 92.3	.878 .893	13½x9/16 15¼x9/16	32½x13/16 36¼x13/16
40.80	1	1 1⅛	B6 B6	15.6 19.4	93.2 94.0	.932 .940	13½x9/16 15¼x9/16	38 x7/8 43¼x7/8
42.07	1 1/32	1 1⅛	B6 B6	15.2 18.9	93.0 93.8	.960 .968	13½x9/16 15¼x9/16	38 x7/8 43¼x7/8
43.35	1 1/16	1 1⅛	B6 B6	14.8 18.4	92.8 93.6	.986 .995	13½x9/16 15¼x9/16	38 x15/16 43¼x15/16
44.62	1 3/32	1 1⅛	B6 B6	14.4 17.9	92.6 93.4	1.010 1.018	13½x9/16 15¼x9/16	38 x15/16 43¼x15/16
45.90	1 1/8	1 1⅛	B6 B6	14.0 17.4	92.5 93.2	1.040 1.047	13½x9/16 15¼x9/16	38 x1 43¼x1
47.17	1 5/32	1 1⅛	B6 B6	13.6 17.0	92.2 93.0	1.064 1.072	13½x5/8 15¼x5/8	38 x1 43¼x1
48.45	1 3/16	1 1⅛	B6 B6	13.3 16.6	92.0 92.9	1.090 1.100	13½x5/8 15¼x5/8	38 x1 1/16 43¼x1 1/16
49.72	1 7/32	1 1⅛	B6 B6	13.0 16.2	91.8 92.7	1.118 1.128	13½x5/8 15¼x5/8	38 x1 1/16 43¼x1 1/16
51.00	1 1/4	1 1⅛	B6 B6	12.7 15.8	91.6 92.5	1.145 1.156	13½x5/8 15¼x5/8	38 x1⅛ 43¼x1⅛
52.27	1 9/32	1 1⅛	B6 B6	12.4 15.4	91.4 92.3	1.171 1.182	13½x11/16 15¼x11/16	38 x1⅛ 43¼x1⅛
53.55	1 5/16	1⅛ 1¼	B6 B6	15.1 18.1	92.1 92.8	1.210 1.216	15¼x11/16 16½x11/16	43¼x1 3/16 46½x1 3/16
54.82	1 11/32	1⅛ 1¼	B6 B6	14.8 17.8	91.9 92.7	1.233 1.245	15¼x11/16 16½x11/16	43¼x1 3/16 46½x1 3/16
56.10	1 3/8	1⅛ 1¼	B6 B6	14.5 17.6	91.8 92.6	1.262 1.272	15¼x¾ 16½x¾	43¼x1¼ 46½x1¼
57.37	1 13/32	1⅛ 1¼	B6 B6	14.2 17.2	91.6 92.5	1.286 1.298	15¼x¾ 16½x¾	43¼x1¼ 46½x1¼
58.65	1 7/16	1⅛ 1¼	B6 B6	14.0 16.8	91.4 92.4	1.310 1.326	15¼x¾ 16½x¾	43¼x1 5/16 46½x1 5/16
59.92	1 15/32	1⅛ 1¼	B6 B6	13.7 16.5	91.2 92.2	1.335 1.350	15¼x¾ 16½x¾	43¼x1 5/16 46½x1 5/16
61.20	1 1/2	1⅛ 1¼	B6 B6	13.4 16.2	91.0 92.0	1.365 1.380	15¼x13/16 16½x13/16	43¼x1⅜ 46½x1⅜

NOTE:—Nomenclature of column headings is same as shown for lap joint tables

Acid Well Would Prevent Sulphur Attack on Tank Bottoms

Protection of the outside of storage tanks with paints is comparatively simple, but interior problems are more complex

By A. C. HOLZAPFEL
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IN VIEW of the recent development of oil fields producing oil of high sulphur content, the destructive influence of sulphur in oil on field tanks, storage tanks, refining plant and tankships has become a more important problem than ever, so much so that the American Petroleum Institute at its recent meeting in St. Louis appointed three committees to deal with this problem.

While various important firms are occupied with the task of finding and developing suitable materials for preventing this damage, there is another aspect of the case which deserves the most serious consideration and that is the psychological attitude of the engineers, experts, foremen and workmen in the oil industry toward this problem.

The protection of the outside of tankage and transportation systems has become a regular habit, which is being attended to with complete success and it offers no particular difficulties.

The internal protection, however, is a different matter. The principal causes for damage are fourfold:

First: Hydrogen sulphide gas in the vapor space above the oil. This combines with the iron, forming sulphide of iron. During the formation of the sulphide of iron considerable heat develops and has probably been the cause of various explosions of oil tanks, particularly in the West Texas field, which have caused some loss of life and severe financial losses to the industry. Sulphide of iron thus formed also sets up electrolysis.

Second: The formation of sulphurous acid, which takes place in the bottom of storage tanks, tankships, etc. This is due to the presence of water in the oil when it gets to the surface, also to condensations of water in the vapor space above the oil. This water carries with it to the bottom of the storage tank or tank steamer a certain amount of sulphur and forms a weak sulphurous acid, causing severe pitting.

Third: Acid condensations in refinery plant. These may take place either in the open or in confined spaces. They are very destructive.

Fourth: Electrolytic action. This is largely due to the formation of sulphide of iron by contact of hydrogen sulphide gas with iron or steel surfaces. This sulphide of iron is electronegative to steel and sets up severe electrolysis, which is very destructive to any metallic material.

There is no doubt that these causes can be met by certain new paints which are being developed by several firms, their chief constituents being certain synthetic gums of comparatively recent invention. Paints of this character can be developed for the various uses above indicated, but the most serious problem in connection therewith is the preparation of the surface to which they have to be applied and the application.

The inside of a tank is not so accessible for painting purposes as the outside; moreover, tanks which have contained crude generally have at their bottoms a considerable amount of slush.

In a recent letter to The OIL WEEKLY I have made the following suggestion: That storage tanks shall have a well of suitable size, say four, five or six feet diameter and two or three feet depth, and that the bottom plating of such tanks should slope slightly towards the well. In this well all acid would quickly collect by the law of gravitation. From it a lead-lined pipe of suitable size could be used to extract the contents of the well, which would siphon out due to the pressure of oil in the tank, a valve being provided near the outlet. To some extent this well might also help to collect and empty the heavy slush from the tank bottom before a tank is emptied for inspection, repairs and painting. With such an arrangement the protection of the tank bottom would offer no difficulties, as the contact with crude oil only would not be very destructive of the tank bottom.

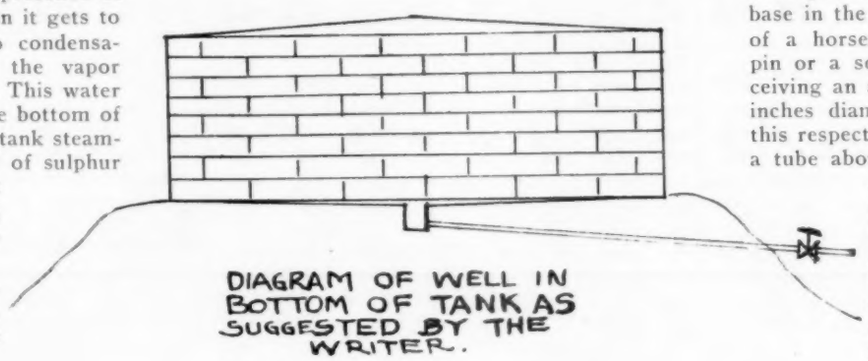


DIAGRAM OF WELL IN BOTTOM OF TANK AS SUGGESTED BY THE WRITER.

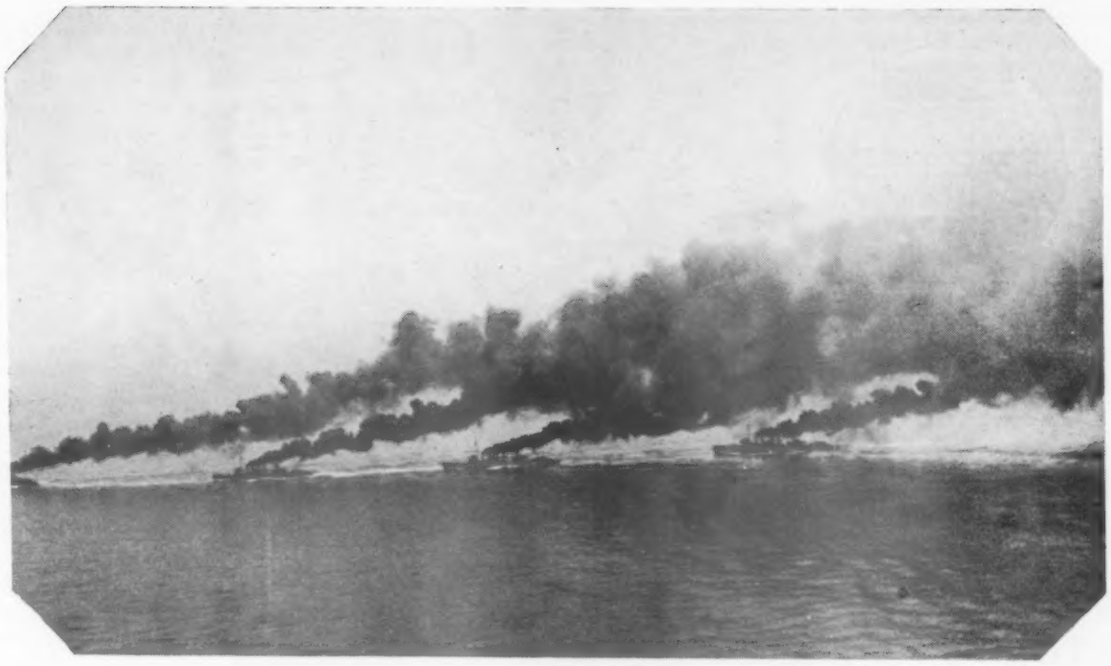
Extraction of Gases

There remains, however, the problem of rapidly extracting the gases from the tank. For this purpose I suggest a collapsible canvas tube having wooden or aluminum rings fitted inside or outside at intervals of about one foot to 18 inches, in order to keep it expanded. The canvas should be impregnated with rubber solution or other suitable air-proofing. At the bottom there should be an aluminum stand to raise it eight to 12 inches above the bottom of the tank. It could be brought out of the side or through a manhole at the top. At the farther end there should be a pneumatic fan to extract the gas. I have estimated that a 15-inch tube 50 feet long of this type could be built at small expense, could be easily transported by one man and could empty the gas out of an 80,000 barrel tank in 1½ hours.

While men are working in the tank, either cleaning, repairing or painting, this ventilator could be kept at work. If it is taken through the manhole door at the top, there should be an aluminum guide tube enclosing the bend of the pipe and having a collar to rest on the sides of the manhole.

We come now to the question of staging. For this purpose, I have discussed with the Aluminum Company of America, at Pittsburgh, a very light collapsible staging, consisting of four pieces, the first being a base in the form approximately of a horseshoe, and having a pin or a socket capable of receiving an aluminum tube 3-3½ inches diameter. Over or into this respectively would be fitted a tube about 20 feet long, and again into this another tube of slightly less diameter and of the same length, having an arm about two feet long at the top, to

(Continued on page 146)

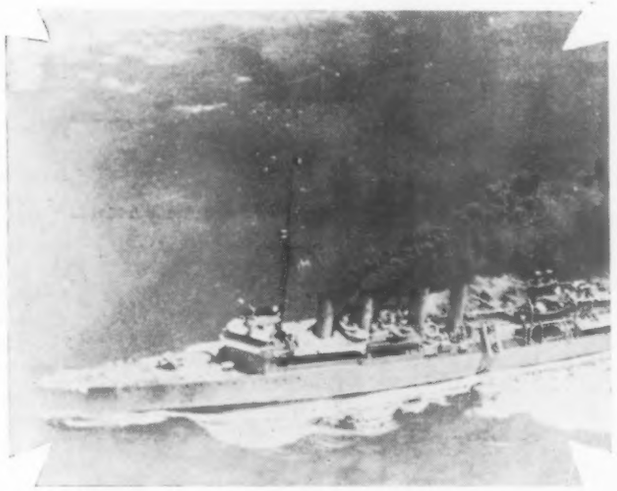


The Strategy of Fuel Oil Navy Plans

By G. K. SPENCER

A STRATEGY of fuel oil which may exercise a potent effect on the preparedness of the United States navy for the emergencies of war, has been placed in effect by the Navy Department. It concerns both the California and the Oklahoma-Texas oil fields in particular, inasmuch as the greater portion of the navy's fuel oil is drawn from these fields through Port Arthur and through San Pedro, California, from which ports the naval tankers take their oil cargoes.

When we remember that the navy expended in 1927 the round sum of $14,000,000 for oil from these two great fields, it can be readily understood that as for single purchasers of oil, this is the largest. Any methods designed to afford the navy better access to these fields in time of emergency may prove of benefit to the entire country, and of present interest.



Smoke screens are made by the use of fuel oil in great quantity. The lower picture shows the beginning and the upper picture a screen well under way.

The present operation of the new "fuel strategy" is designed to render the United States fleets almost entirely independent of the land, to give them seakeeping qualities which will vastly enlarge their field of action and maintain a steady supply of fuel oil to the fighting ships regardless of the oil tankerage which may be intercepted and sunk by enemies at sea.

Owing to the greatly lower prices of oil from these two main fields, the naval tankerage, excepting only the navy's own reserves, will operate from Port Arthur and San Pedro during the Pacific maneuvers of the early summer of 1928. However, during the period of the maneuvers, a regular flow of tankerage oil will move to Cavite, Philippine Islands, Guantanamo, Hawaii, and to the Northwest coast. That is, practically a wartime flow of oil will be maintained. The fleets will consume 11 days passing from San Francisco to Hawaii, with battle operations en route, and daily the tankers will rendezvous with the fighting ships.

During these operations, there will be used 15,000,000 gallons of fuel oil as a sharp minimum, with the probability that the total consumption by all ships will be nearer 20,000,000 gallons.

This seems like a terrific amount of fuel—and it is. But we have to take into consideration the fact that practically the entire United States fleet will be represented, and that when the combatant ships are steaming at full speed, or making smoke screens, the consumption of fuel oil reaches a staggering figure very quickly. A smoke screen is nothing more than so much carbonized oil floating in the atmosphere and when the fleet is protected by a smoke screen it in reality is protected by nothing but a wall of fuel oil, which is pumped into the air as fast as the huge blowers and funnels can drive it out from the burners.

Whereas, originally in the navy, only about 500 pounds of fuel oil could be burned in one atomizer per hour, lately as high as 4000 pounds per hour has been

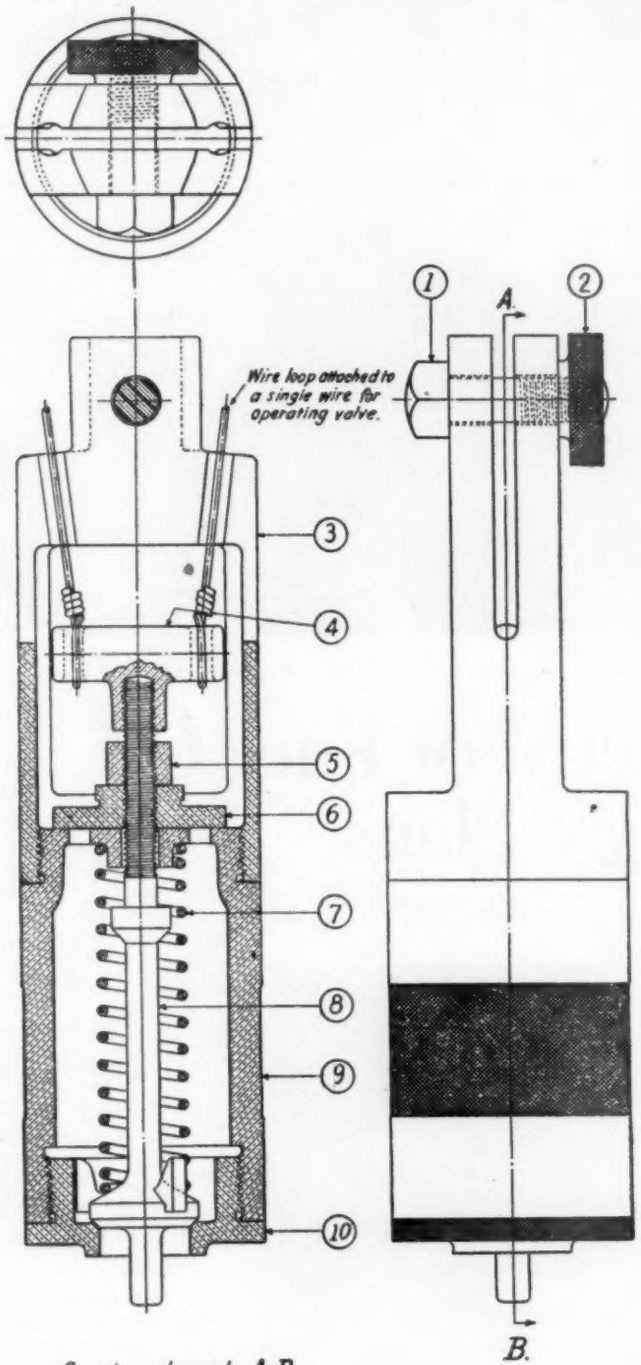


Fig. 2.
APPARATUS FOR OBTAINING FUEL-OIL SAMPLES

Lieut. Commander G. B. Vroom has developed a sampler for obtaining fuel-oil samples from any level in a fuel-oil tank.

The bureau has made working drawings of the sampler. A sketch of the sampler is shown in Figure 2. The sampler consists of an oil chamber (9), closed at the bottom by the oil inlet valve (8) and at the top by the air outlet valve (6). Item (8) is a feathered valve and (6) is a disk valve, both being carried on the same spring-actuated stem. The tip on (8) is to prevent the end of the sampler resting on the bottom of a tank, thus closing the oil inlet.

To use the sampler, secure it to a sounding rod with the clamp (2). The standard sounding rod will have to be altered by grinding off the end boss and drilling a hole. Attach a wire to the wire loop. Lower sampler to the desired level. Pull the wire to open the valves and allow the sampler to fill. Release the wire and withdraw sampler. It is necessary that the sounding rod be sufficiently stiff to resist the pull on the wire.

The numbered items shown on the sketch are

Item 1, 2. Clamp for sounding rod.
3. Yoke attached to item 9.
4. Cross-bar nut to carry wire bridle.
5. Lock nut for item 6.
6. Air outlet valve disk.
7. Valve spring.
8. Oil inlet valve.
9. Oil chamber.
10. Valve seat and oil-chamber end nut.

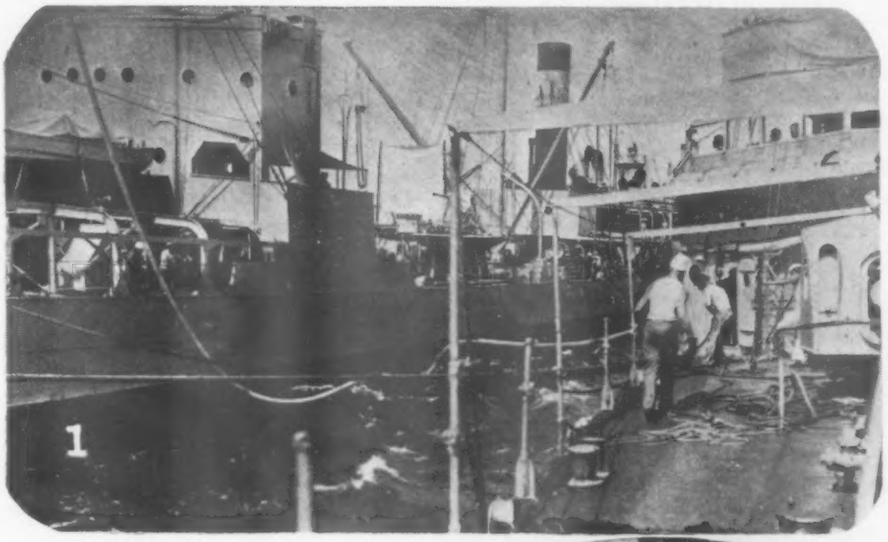
successfully burned, resulting in greater power being developed per boiler, with consequent decrease in weight and size per unit of power. In commercial practice about 10 square feet of heating surface is allowed per boiler horsepower, but the results above permit the navy to obtain a boiler horsepower on only about three square feet of heating surface.

There is another development which is just now being touched, and which will make a radical saving in this country's expenditures for fuel oil. This is the successful burning of the lowest grades of fuel oil. Many changes are necessary to accomplish this, but the navy is now conducting tests which will result in the proper method being made public. The greatest source of loss at sea is the improper burning of oil, and the navy intends to arrive at methods eventually which will allow a very economical use of oil. These methods will be communicated to the mercantile marine, and may have much to do with the rejuvenation of the American mercantile marine. For if we must pay seamen higher wages, it may be possible for our marine to reach a balance with the mercantile marines of other nations by economies in burning fuel oil.

Buying in Market

The drawing of naval oil in the first half of this year may be of inestimable service in helping to adjust the present difficulties in the oil industry. Owing to a peculiar combination of overproduction and competition within the ranks of the oil producers, a very unprofitable situation was precipitated. This, the navy hopes, may be partially, at least, cleared away by the naval demand. To this end, all the navy's own reserves have been sealed and will remain so. All fuel oil will be purchased from the civilian market, to help relieve the strain. Payment for this fuel, by special arrangements with the treasury of the United States, will be forthcoming at once, so that producers need not depend on credits to finance the business they do with the navy.

Perhaps in no other branch of engineering is definite, quantitative knowledge so indeterminate as in that which has to do with the lubrication of machinery. In the first place, it has only been recently that sufficient uniformity in product has enabled consistent tests to be made. Again, the condition under which lubricants are used vary so much even on board the same ship, that is difficult to arrive at a satisfactory conclusion regarding results. In the early days, it was a matter of less importance than today, as the speeds were very low, bearing pressures low, and adjustments not close. Often any kind of fat would be used and applied in a haphazard fashion. As the harmful effects of the acids of such animal and vegetable fats in the machinery and boilers became apparent, improvements in lubricants were demanded.



1—*Destroyer taking oil from battleship at sea.*

Mineral oils were found to be best suited for general use, and one of the problems of industrial, as well as naval engineering, has been to standardize the manufacture of lubricants, both oils and greases. Mineral lubricating oils are derived from the crude oils with either paraffin or asphaltic base. Varied claims were made concerning the peculiar efficiency of the resultant lubricants, and many bitter controversies were waged regarding merits of the two classes, as typified by the Pennsylvania or Oklahoma-Texas crudes.

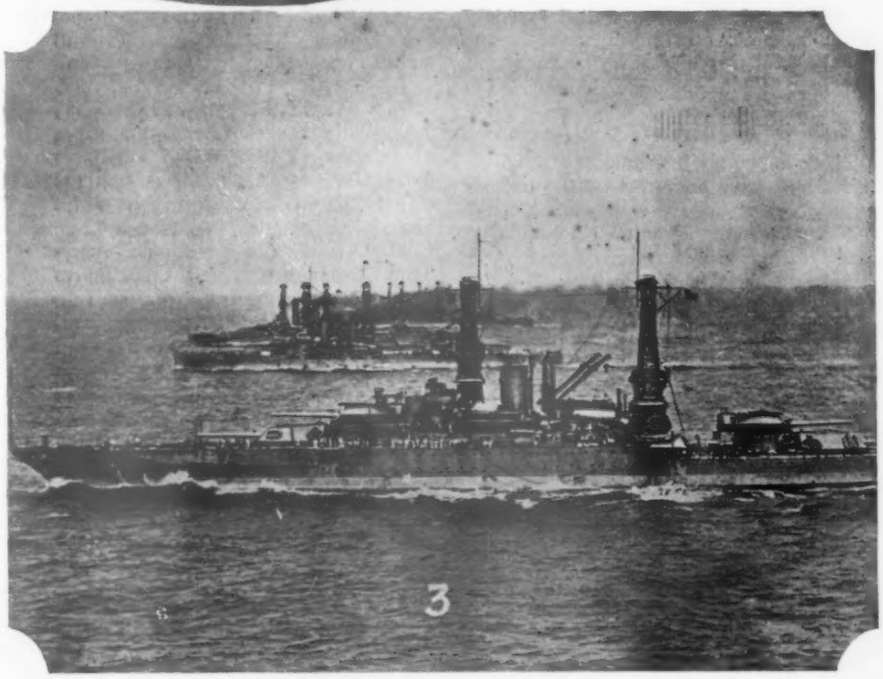
Study of Lubrication

However, the navy has tested the various types impartially and it was the navy which was largely instrumental in breaking down the prejudice that existed against the Oklahoma and Texas fields, thus opening up to the engineering world in general the vast oil fields in the western part of the United States. As in the other tests, the results have been unbiased. Laboratory tests, as well as tests on shipboard, are constantly being made to insure that the quality is kept up to standard, and to test out new brands of oil. The improvement in such oils has permitted the adoption of forced lubrication for reciprocating engine sets, which procedure has inmeasurably improved their performance. The largest high-speed turbo-generators, running at some 2400 revolutions per minute, are successfully lubricated, and the systems include oil purifiers, which permit the frequent cleaning of the used oil thus greatly increasing the life of the lubricant.

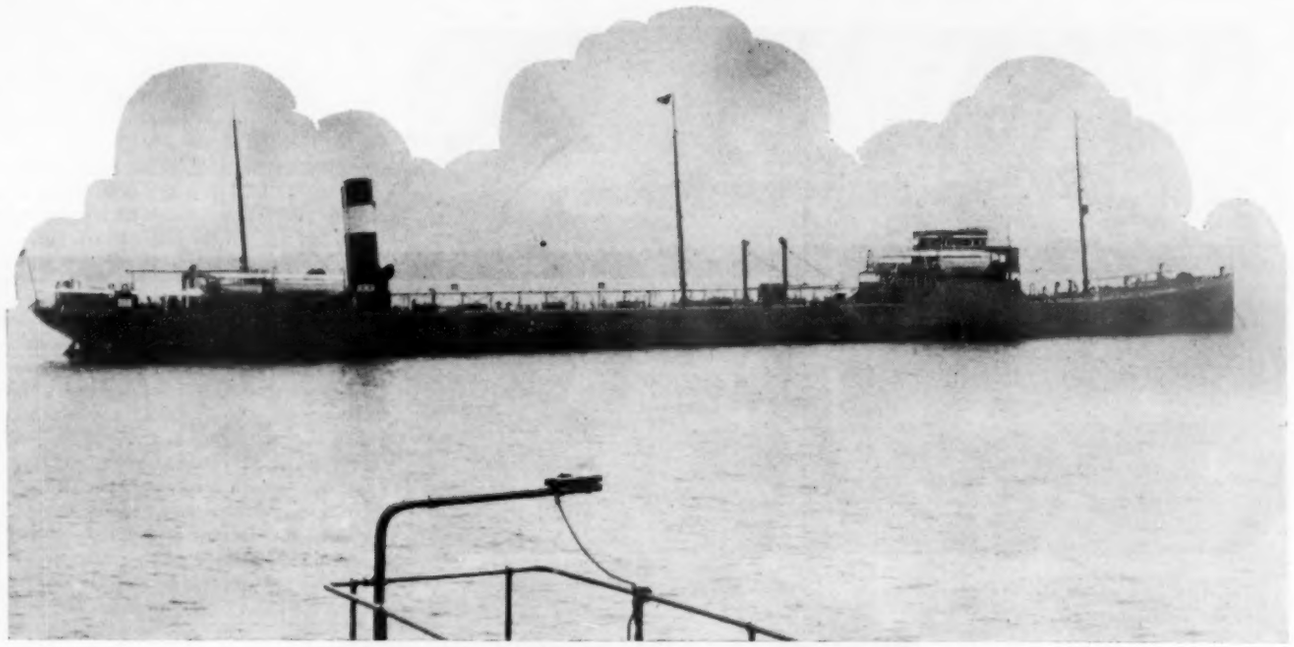
As indicative of the great interest displayed by manufacturers, engineering societies, technicists and individuals throughout the United States and foreign countries, the navy is constantly in receipt of requests for its publications on the subject of specifications and tests of lubricating oils. This also applies to other important engineering subjects in which the use of fuel oil and lubricating oil is of paramount importance.

Literally, the entire navy afloat is supported on oil. The problems faced by the fleets are even more vital than those of the land engineering plants, for at sea the lives of all personnel and the success of the nation itself as a maritime country are at stake. It is this constant dependence on adequate oils which has placed the navy in the forefront of national oil engineering. Perhaps one of the greatest services the navy extended in the entire history of oil was just its successful determination that the Oklahoma-Texas oils were in every way equal to the Pennsylvania and California oil. At the present time, it happens that the Oklahoma-Texas fields are, with the California fields supplying practically all the naval fuel oil, and the vast majority of the naval lubricating oils.

2—*Oil valves on a naval tanker. The ship is taking oil at sea.*



3—*A powerful fleet based on oil.*



The John D. Archbold

Tankers—
Their Use Unlimited

By E. M. CLARK
President of the Standard Shipping Company

"AS concerning ships it is that which everyone knoweth and can say: "They are our wealth, they are our ornaments, they are our strength, they are our pleasures, they are our defense, they are our profit; the fortunate by them is made rich, the kingdom through them strong, the prince in them is mighty, in a word, by them in a manner, we live, the Kingdom is, the King liveth..' "—*From an old English pamphlet about* 1681.

There have been instruments of civilization which have done their work and become obsolete, but the value of ships still remains beyond reckoning. Similarly, many factors which have played their part in the development of the petroleum industry are now in disuse, but the future of tankers is still unlimited, save by the final exhaustion of the supply of oil. For petroleum is peculiarly a product for transportation by water. While it is needed in centers of population, it has a way of being discovered in wildernesses and in far countries. In 1926 seven countries produced over 95 per cent. of the world's oil. North and South America combined supply well over 80 per cent. of the annual oil supply. How the rest of the world would get the oil it requires, without the aid of tankers is indeed inconceivable.

The tanker has two important jobs. She must gather oil at the source, which may be Venezuela or Persia, California, Roumania, or the Dutch East Indies, and supply that oil to seaboard refineries. The second job is to carry refined products to market at any port on the seven seas. When one source gives out, the tanker is ready to trade from the next; and when one refining center is over supplied, the tanker must deliver her cargo to another.

World Tanker Tonnage

The estimated world tanker tonnage as of January 1, 1928, was 9,501,116 gross tons (1197 vessels). This is an increase of over 300 per cent. since 1913. And on January 1 of this year an additional 1,100,000 gross tons were under construction. Although it is very difficult to arrive at an exact figure, a reasonable estimate shows that in 1927 between 600,000,000 and 650,000,000 barrels of crude and refined petroleum products were moved in tank ships. The investment of United States companies alone in oil tankers is placed at $600,000,000.

Kerosene was the first petroleum product to be exported from this country. In 1861 a first shipment of five barrels was made to London. Later in the same year a cargo ship of 224 tons, the "Elizabeth Watts," loaded a full cargo of barreled oil and prepared to sail from Philadelphia to Europe. Free and sober sailors who would risk their salty lives with such a cargo could not be found. But the "crimps" tended to that; and the ship sailed with a full crew. By the time they sobered up they were too far offshore to swim back. The voyage proved a success. Other ships were sent across the ocean with similar cargo. In the year 1864 above 30,000,000 gallons of oil were shipped from this country to Europe.

For some years the shipments were made in barrels. Then it was discovered that cases were easier to handle; the ship could be loaded and unloaded more rapidly, and in many markets the case was more suitable, because two cases made a neat load for a pack animal. In 1869, however, the sailing ship "Charles" was fitted with 59 separate tanks with a total capacity of 714 tons, and until 1872 engaged in the carriage of crude oil. In that year the steamship "Vaderland" was built as the first steam driven tanker. She was as much of an experiment as the "Elizabeth Watts" had been a decade earlier. It was difficult to find men who would ship on a vessel having fires in its engine room and oil as its cargo.

Oil Powered

There are many differences between those old oil carriers and the modern tanker. The "Vaderland" was a ship of 2479 tons, while the average modern tanker has a deadweight capacity of from 8000 to 10,000 tons. And whereas the early tankers had many separate tanks

built within the hold (which resulted in exceedingly dangerous gas conditions) in the present day tanker the hull forms the sides of the tanks. And the latest tendency is also away from steam. The Diesel engine is proving a favorite for tank ships. Of 119 tankers now building, 100 are to be driven by internal combustion engines. Because of the fact that there has been a lull in tanker construction in America since the war, the majority of the Diesel ships are under other flags.

The problems of tank ship operation have varied a great deal as the source of crude supplies has changed. When the heavy oils of Mexico came in a flood, about 70 per cent. of them being exported to the United States, many new difficulties arose. In order to load and discharge the cargoes in reasonable time, it was found necessary to install steam coils in both the ships' tanks and the shore tanks. According to its gravity, the oil was heated to various points above 100 degrees F. (By the use of such a system it is now not unusual to carry crude scale wax, which at ordinary temperatures is a solid. This type of cargo is hot when loaded, and must be kept heated for the entire voyage). The lack of any port in the Southern Mexican field coupled with the difficulty of laying pipe lines to Tampico presented another problem, which was finally solved by the evolution of a method of loading ships from 1000 to 2000 yards off shore. Many precautions had to be taken so that the ship could disconnect the cargo hoses immediately in case a "norther" or squall descended with a high wind and rough water. From the experience gained off Tuxpam, tank ship operators learned how to load offshore whenever the need arises.

Panama Canal

The Mexican fields began to give out; about the same time big production started in California. The tankers found ready employment carrying California oil to the Eastern seaboard. For the first time in its history the Panama Canal began to show a profit. Although less oil is being carried from California now than in 1923, the tankers are still a boon to the canal. During the calendar year 1927, 1336 tank ships, carrying 7,641,480 tons of mineral oil products, and paying tolls of $6,659,189.94 transited the Panama Canal. This comprised 21.9 per cent. of the total commercial transits, 26.6 per cent. of the total Panama Canal measurement net tonnage, 25.4 per cent. of the total tolls, and 24.3 per cent. of the total cargo carried through the canal.

Now the scene shifts towards Venezuela. This tropical land is coming in strong as a source of crude, and raises a new problem. The average 8000-ton tanker draws about 25 feet of water, summer draft. But the vast Lake Maracaibo, which is the gateway to Venezuelan oil, will not admit such deep draft ships. It has been necessary to construct special tankers for this new trade. They are small ships of about 3000 tons capacity, and draw but 11 feet of water. Fifty of them are now at work transporting oil from Maracaibo Lake to deep water storage stations, where the cargo may be picked up for ocean transport by deep draft tankers.

As the flow of oil increases in Mesopotamia, tanker tonnage will undobutedly move into that trade.

A fair idea of how the allocation of tanker tonnage to different trades changes may be gained from the following table of figures. The number of tankers engaged in each trade as of January 1 of the indicated year is shown.

Trade	1923	1928
Mexico	140	56
Transatlantic	159	196
Coasting (home ports)	231	338
South America	34	203
Black Sea	6	63
Far East	136	202
Unknown	36	86
Tied up	217	53

Each new trade has, so to speak, its peculiarities of wind and tide and custom. As the scene of tanker operations shifts from one part of the globe to another, the operator faces and overcomes a whole new set of problems.

No greater set of difficulties has faced the tankers than in their war service. Someone has said the war was "won on a wave of oil." Something like 80 per cent. of the petroleum products used by the allies came from American refineries. The tankers not only had to supply this oil, but they supplied the refineries with crude. They were strained to the limit. With more work to do than had ever been demanded of them, they were forced to lower their speed and to operate under all the handicaps of wartime commerce. During the course of the war the amount of cargo carried overseas in tankers increased more than 200 per cent. The tankers did their herculean task success-

WORLD TANKERS* (*500 Gross Tons and Over*)

Flag	June 30, 1914						June 30, 1926						June 30, 1927					
	Steam and gas		Sail and barge		Total		Steam and gas		Sail and barge		Total		Steam and gas		Sail and barge		Total	
	No.	Gross	No.	Gross	No.	Gross	No.	Gross	No.	Gross	No.	Gross	No.	Gross	No.	Gross	No.	Gross
American†	26	94,466	28	56,219	54	150,685	392	2,305,566	88	116,307	480	2,421,873	389	2,304,325	95	118,279	484	2,422,604
Argentine	..	....	..	....	..	....	7	23,123	2	2,643	9	25,766	6	18,646	3	4,598	9	23,244
Belgian	8	25,811	..	....	8	25,811	9	49,092	..	....	9	49,092	6	39,684	..	....	6	39,684
Brazilian	..	....	..	....	..	....	1	2,347	..	....	1	2,347	1	2,347	..	....	1	2,347
British	181	815,849	7	21,561	188	837,410	355	1,918,901	4	14,593	359	1,933,494	372	2,008,430	4	14,593	376	2,023,023
Chinese	..	....	..	....	..	....	3	2,385	..	....	3	2,385	1	510	..	....	1	510
Cuban	..	....	..	....	..	....	4	11,176	4	4,125	8	15,301	4	11,176	4	4,125	8	15,301
Danish	..	....	1	735	1	735	3	12,660	1	731	4	13,391	3	12,660	..	....	3	12,660
Dansig	..	....	..	....	..	....	10	88,197	..	....	10	88,197	13	113,003	..	....	13	113,003
Dominican	..	....	..	....	..	....	1	1,970	..	....	1	1,970	1	1,970	..	....	1	1,970
Dutch	27	72,766	8	8,642	35	81,408	47	156,309	3	2,207	50	158,516	57	187,295	3	2,207	60	189,502
Ecuadoran	..	....	..	....	..	....	1	2,210	..	....	1	2,210	1	2,210	..	....	1	2,210
Estonian	..	....	..	....	..	....	1	614	..	....	1	614	..	....	..	....	..	....
Finnish	..	....	..	....	..	....	..	....	..	....	..	....	1	691	..	....	1	691
French	3	11,232	..	....	3	11,232	24	131,986	..	....	24	131,986	25	137,941	..	....	25	137,941
German	46	215,844	1	728	47	216,572	16	57,346	..	....	16	57,346	21	85,177	..	....	21	85,177
Greek	1	1,633	..	....	1	1,633	..	....	..	....	..	....	..	....	..	....	..	....
Italian	3	16,007	..	....	3	16,007	35	157,784	..	....	35	157,784	48	208,034	..	....	48	208,034
Japanese	4	19,808	..	....	4	19,808	12	36,080	..	....	12	36,080	11	42,125	..	....	11	42,125
Mexican	4	13,464	..	....	4	13,464	2	11,716	4	3,014	6	14,730	2	11,716	5	3,770	7	15,486
Moroccan	..	....	..	....	..	....	..	....	..	....	..	....	2	522	..	....	1	522
Norwegian	9	48,042	1	1,254	10	49,296	53	326,225	..	....	53	326,225	58	364,828	..	....	58	364,828
Panaman	..	....	..	....	..	....	1	6,163	..	....	1	6,163	..	....	..	....	..	....
Peruvian	..	....	..	....	..	....	..	....	..	....	..	....	1	6,163	..	....	1	6,163
Philippine	..	....	..	....	..	....	2	3,284	..	....	2	3,284	1	2,296	..	....	1	2,296
Portuguese	..	....	..	....	..	....	2	2,822	..	....	2	2,822	3	3,392	..	....	3	3,392
Rumanian	..	....	..	....	..	....	3	9,270	..	....	3	9,270	3	9,270	..	....	3	9,270
Russian	6	14,371	..	....	6	14,371	2	6,505	..	....	2	6,505	2	6,505	..	....	2	6,505
Spanish	1	672	..	....	1	672	9	31,270	..	....	9	31,270	10	31,836	..	....	10	31,836
Swedish	1	2,092	..	....	1	2,092	3	16,270	..	....	3	16,270	3	16,270	..	....	3	16,270
Uruguayan	..	....	..	....	..	....	1	630	..	....	1	630	1	630	..	....	1	630
Venesuelan	..	....	..	....	..	....	2	3,953	..	....	2	3,953	5	10,669	2	2,341	7	13,010
Total	320	1,352,057	46	89,139	366	1,441,196	1,001	5,375,854	106	143,620	1,107	5,519,474	1,050	5,640,321	116	149,913	1,166	5,790,234

Authority: All figures, except for American tankers, are prepared from Lloyd's Register.
* Exclusive of Navy, Admiralty, an other Government tankers.

† Including tankers on Great Lakes.

fully and the building of tankers received its greatest impetus in those years.

Perhaps no other type of ship spends so much of her time at sea as does the tanker. Out of every eight days, the tanker will average seven at sea. In less than 24 hours she will come alongside her dock, load or discharge 100,000 barrels of oil, and be on her way to sea again. Fuel oil stations for ships- and there are more ports where oil for bunkers may be had than ever there were coaling ports—are largely supplied by the tankers. Nor would it be easy to find a spot on the globe that is not assured of its supply of gasoline or illuminating oils because the tanker carries her cargo to the remotest ports.

During the period from January 1, 1922, to May 1, 1927—about five and a half years—the world's tanker tonnage averaged almost 8,000,000 deadweight tons. There were transported in that period 135,000,000,000 gallons of petroleum products in bulk across 225,000,000 miles of ocean. This was an average of more than 69,000,000 gallons per day. And during the course of this all but incredible performance of work, the aggregate number of fires and explosions in tank steamers, whether loading or discharging cargo, undergoing repairs, or at sea, was 57. That was thirty-two one hundredths of one per cent. of all the marine casualties reported during the period, which numbered in excess of 17,600.

The tanker can claim to be one of the safest as well as one of the most useful ships.

Twin-Screw Diesel Tanker Among Largest

IMPROVEMENTS in oil transporting facilities have not been confined to equipment that operates on land. The investment in tankers precludes their being changed after they have been completed, but shipbuilders have kept abreast with the times and modern oil tankers represent the most progressive in marine engineering.

Among the most modern and largest of tankers in operation today is the C. O. Stillman, a 21,350-ton deadweight capacity bulk oil carrying motorship. The vessel was built by a German firm for the International Petroleum Company, Ltd., of Canada.

The tanker is a twin screw Diesel motor propelled vessel, of the two-deck island house aft, bridge and forecastle type, with the propelling machinery aft, and constructed structurally upon the latest longitudinal framing principle. The length between perpendiculars of the boat is 565 feet. The breadth, molded is 75 feet, four inches. The depth to the upper deck is 44 feet, six inches.

The vessel has only one complete deck, the upper. The second deck forming the bottom of the wing or summer tanks, is located at a height of 15 feet below the upper deck, and in way of the cargo oil tank space bunkers and machinery hatch, extends as a flat outboard of the expansion trunk bulkheads or machinery space hatch.

The deep 'tween-decks in way of the cargo oil tanks space has been arranged to permit of carrying a deadweight cargo of heavy petroleum products entirely within the main tanks, with the wing or summer tanks used when a volumetric or light cargo is carried. The cargo oil tanks total net cubic capacity is such that a complete cargo of 68 degree A. P. I. product, corresponding in weight to the vessel's deadweight capacity, may be carried.

Comfortable quarters arranged in the bridge houses, island house aft, and upon the after 'tween-decks accommodate the personal. All messing arrangements, including the galley and bakery, are self-contained in a house upon the upper deck, just abaft the machinery casings. All superstructure houses and house tops are of steel, as are the passageway bulkheads within the houses. This has been done to minimize wood and like fire hazardous materials.

The steering gear is electrically operated. Manual operation of the gear is also provided in the steering gear space, and for emergency purposes there is a handwheel operated gear sector and gypsy heads fitted upon the after capstan drive shafts to serve in working relieving tackle.

The cargo oil pumping system consists mainly of three 360x540x360x610 millimeter packed piston, horizontal duplex compound or simple stroke governor controlled mechanically lubricated, steam actuated cargo oil pumps, each having a normal rated discharging capacity of 3000 42-gallon barrels of petroleum or water per hour, when operating under a steam pressure at the high pressure cylinders of 180 pounds per square inch and against a discharge pressure of 125 pounds per square inch.

For stripping purposes, there is installed a 12x8x12-inch vertical, duplex, slide valved, mechanically lubricated, steam actuated cargo oil pump having a normal rated discharging capacity of 640 barrels per hour when operating under like conditions as those indicated for the main cargo oil pumps.

Power

The propulsive power installation consists of two, single-acting, two-cylinder, six-cycle Bremer-Vulkan M.A.N. motors. These power cylinder diameters of 27.5 inches, strokes of 47.25 inches, operate at a normal speed of 90 revolutions per minute and develop a shaft horsepower of 2150 at 56.2 pounds M.E.P.

The John D. Archbold is another ultra-modern tanker owned and operated by the Standard Oil Company of New Jersey. This vessel is designed to carry a cargo of over 5,000,000 gallons of gasoline or similar products.

This tanker is also of the twin-screw type with machinery aft, powered with two three-cylinder expansion, vertical inverted, reciprocal marine engines having high, intermediate and low pressure cylinders, 23 inches, 39 inches and 68 inches, respectively, a stroke of 45 inches and de-developing a total indicated horsepower of 3800, when operating at a piston speed of 585 feet per minute, with steam supplied at 200 pounds boiler pressure. There are three single ended Scotch marine boilers, 17 feet inside diameter by 12 feet long, of the four-furnace type, constructed for a working steam pressure of 200 pounds, and arranged for burning oil fuel and for forced draft.

Pumping equipment includes four horizontal duplex, main cargo oil pumps, with compound steam cylinders 12 inches and 18 inches in diameter, 24-inch stroke and oil cylinders 14½ inches in diameter, and two auxiliary cargo oil pumps of the vertical duplex type, with 12-inch steam cylinders, and eight-inch oil cylinders and 12-inch stroke, located in the pump room amidships.

Complete steam heating coils are fitted to the main cargo oil and fuel tanks.

Accommodations for the captain, deck officers, etc., are provided in a double tier of steel deck houses amidships, above the bridge deck.

Four 26-foot metallic life boats are fitted, swung under mechanically operated davits. The vessel has ample electric lighting arrangements, cold storage rooms, steam heating systems, an interior communication system, drainage system, fire main and deck service systems, steam steering gear, steam windlass and winches, submarine signal apparatus, wireless outfit and complete navigational outfit.

THE LEVIATHAN OF TANKERS

The C. O. Stillman belonging to the International Petroleum Company, Ltd., of Canada

UNITED STATES TANKER REGISTRY

Vessels of 500 Gross Tons and Over equipped for Carrying Petroleum in Bulk

STEAM AND MOTOR VESSELS

RECAPITULATION

	Number	Gross tons	Tankage
			Gallons
Steam and motor vessels	385	2,313,834	1,090,532,000
Sailing vessels	38	70,636	39,280,000
Unrigged vessels	60	50,697	29,996,000
Total	483	2,435,167	1,159,708,000

[Steam unless otherwise indicated.]

Name of vessel.	Gross tons.	Tankage.a	Speed.	Bunker capacity.	Cruising radius.	Name of owner.	Home port.
		1,000 gals.	*Knots.*	*Gallons.*	*Miles.*		
A. A. Daugherty	3,518	1,260	8	27,216	2,600	National Oil Transport Co. (Inc.)	Port Arthur, Tex.
A. C. Bedford	9,485	4,999	11½	442,000	10,780	Standard Shipping Co. (Inc.)	Wilmington, Del.
Acme	6,878	3,125	10	515,910	13,752	Standard Transportation Co. (Inc.)	New York, N. Y.
Agwihavre	8,862	4,315	12	554,188	12,880	Atlantic, Gulf & West Indies Steamship Lines (Inc.)	Do.
Agwilake	7,815	4,185	11	418,959	10,824	....do	Do.
Agwimars	6,771	3,253	10½	509,950	17,000	....do	Do.
Agwimex	8,862	4,315	12	554,188	12,880	....do	Do.
Agwipond	8,024	4,185	10½	418,959	10,080	Guaranty Trust Co. (Inc.)	Do
Agwisea	8,013	4,185	11	418,959	10,824	Atlantic, Gulf & West Indies Steamship Lines (Inc.)	Do.
Agwistone	10,388	5,116	10½	565,000	10,500	....do	Do.
Agwisun	6,784	3,236	10½	515,150	17,000	....do	Do.
Agwiworld	6,771	3,253	10½	509,950	17,000	....do	Do.
Alabama	2,801	1,516	8½	176,400	8,640	Texas Co. (Inc.)	Wilmington, Del.
Aladdin	6,882	3,370	11	494,059	11,737	Standard Transportation Co. (Inc.)	New York, N. Y.
Alaska Standard (el. s.) (oil)	1,274	504	9	23,556	4,725	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
Albany Socony (oil)	533	342	8	4,000	1,500	Standard Oil Co. of New York (Inc.)	Los Angeles, Calif.
Albert Hill	7,115	3,268	10½	270,000	6,500	Atlantic Refining Co. (Inc.)	Philadelphia, Pa.
Albert E. Watts	7,137	3,493	11	414,690	13,500	Sinclair Navigation Co. (Inc.)	New York, N. Y.
Algonquin	7,229	3,138	10	536,946	7,617	Standard Transportation Co. (Inc.)	Do.
Alpha	5,771	3,301	10½	305,785	3,000	Alpha Steamship Corporation	Do.
Altair	6,784	3,335	10½	300,000	10,000	Standard Transportation Co. (Inc.)	Do.
Amolco	3,101	825	9	b 307	4,000	Boston Molasses Co. (Inc.)	Boston, Mass.
Amsterdam Socony (oil)	1,199	680	9	14,968	4,000	Standard Transportation Co. (Inc.)	New York, N. Y.
Antietam	6,972	3,138	11	468,148	13,400	Antietam Steamship Corporation	Philadelphia, Pa.
Ardmore	7,035	3,290	10½	371,000	13,100	Ardmore Steamship Co. (Inc.)	Wilmington, Del.
Argob	6,932	3,250	11	260,710	7,645	Standard Transportation Co. (Inc.)	New York, N. Y.
Ario	6,932	3,250	11	260,710	7,645	....do	Do.
Aryan	6,542	3,116	10½	438,000	13,104	Texas Co. (Inc.)	Wilmington, Del.
Astral	8,652	3,350	10½	356,730	9,377	Standard Transportation Co. (Inc.)	New York, N. Y.
Atlantic Sun	6,996	3,500	10½	380,800	9,000	Sun Oil Co. (Inc.)	Philadelphia, Pa.
Atlas	7,038	3,000	11	378,000	10,000	Standard Transportation Co. (Inc.)	New York, N. Y.
Aurora (oil)	7,050	3,492	10	395,842	9,240	Sun Shipbuilding & Dry Dock Co. (Inc.)	Philadelphia, Pa.
Bacol (oil)	1,698	578	9	54,200	7,100	Mount Hope Steamship Co. (Inc.)	Wilmington, Del.
Baldbutte	6,295	3,218	10½	317,587	8,086	United States Shipping Board	Boston, Mass.
Baldhill	6,376	3,218	10½	317,560	8,253	....do	Do.
Bayonne (oil)	1,077	528	8	17,085	2,112	Vacuum Oil Corporation	New York, N. Y.
Beaconlight	6,954	3,70	10	538,946	7,700	National Bank of Commerce in New York (Trustee)	Boston, Mass.
Beaconoil	7,058	3,370	11	307,490	8,870	....do	Do.
Benjamin Brewster	5,950	2,784	10½	278,000	8,560	Standard Shipping Co. (Inc.)	Wilmington, Del.
Bessemer (el. s.)	4,917	2,412	11	363,196	11,500	Atlantic Refining Co. (Inc.)	Philadelphia, Pa.
Beta	5,665	3,301	10½	260,400	3,200	Beta Steamship Corporation	New York, N. Y.
Betterton	7,198	3,492	10	407,088	8,820	Associated Oil Co. (Inc.)	San Francisco, Calif.
Bidwell	7,050	3,492	10	393,400	8,000	Sun Oil Co. (Inc.)	Philadelphia, Pa.
Birkenhead	6,960	3,445	11	452,214	6,000	Vacuum Oil Corporation	New York, N. Y.
Bohemian Club	6,882	3,377	11	262,400	7,312	Atlantic Refining Co. (Inc.)	Philadelphia, Pa.
Boston Socony (oil)	1,199	680	9	15,000	3,000	Standard Transportation Co. (Inc.)	New York, N. Y.
Brabant	2,773	1,602	9	177,320	9,447	Texas Co. (Inc.)	Port Arthur, Tex.
Brandywine	4,999	2,412	11	363,195	11,500	United States Shipping Board	Philadelphia, Pa.
Brilliant (el. s.) (oil)	828	250	9½	30,000	2,500	Atlantic Refining Co. (Inc.)	Do.
Broad Arrow	7,796	4,184	7½	356,730	9,108	Standard Transportation Co. (Inc.)	New York, N. Y.
Buffalo Socony (oil)	533	342	11	4,110	1,500	Standard Oil Co. (Inc.)	Los Angeles, Calif.
Burlington Socony (oil)	1,199	680	9	14,968	4,000	Standard Transportation Co. (Inc.)	New York, N. Y.
Byron D. Benson	7,953	3,877	10½	350,648	15,950	Tide Water Oil Co. (Inc.)	Do.
C. A. Canfield	6,156	2,646	10½	176,400	5,800	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif
C. B. Watson	2,209	800	7½	91,410	2,500	Sabine Towing Co. (Inc.)	Port Arthur, Tex.
Caddo	6,223	2,980	10½	313,000	9,330	Standard Shipping Co. (Inc.)	Wilmington, Del.
Caliche	4,767	2,412	10	270,275	11,500	Anglo-Chilean Consolidated Nitrate Corporation	New York, N. Y.
Caloria	4,095	1,790	9	254,000	9,730	Standard Fruit & Steamship Co. (Inc.)	New Orleans, La.
Camden	6,653	4,000	11½	353,623	8,000	United Fruit Tanker Corporation	New York, N. Y
Captain A. F. Lucas	4,188	1,515	10½	348,000	11,617	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
Carrabulle	5,030	3,892	11½	344,963	9,000	Cuba Distilling Co. (Inc.)	Baltimore, Md.
Cassimir	5,030	1,917	11½	344,963	9,000	....do	Do.
Castana	5,030	3,892	11½	344,963	9,000	Steamer Castana Corporation	New York, N. Y.
Catahoula	5,030	3,892	11½	344,963	9,000	Cuba Distilling Co. (Inc.)	Baltimore, Md.
Cathwood	7,072	3,000	10	538,946	7,700	Union Oil Co. of California (Inc.)	Los Angeles, Calif.
Cecil County	7,641	3,492	10	389,466	9,240	Oil Transport Co. (Inc.)	Baltimore, Md.
Cedarhurst	5,030	3,892	11½	344,963	9,000	Steamer Cedarhurst Corporation	New York, N. Y.
Cerro-Azul	8,876	4,315	12	554,188	12,880	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Cerro-Ebano	8,880	4,315	12	554,188	12,800	....do	Do.
Charles Pratt	8,982	5,014	11½	475,000	12,100	Standard Shipping Co. (Inc.)	Wilmington, Del.
Charles E. Harwood	2,990	1,411	8½	96,600	3,000	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Charles G. Black	14,305	5,544	11½	760,000	15,000	Standard Shipping Co. (Inc.)	Wilmington, Del.
Charles M. Everest	5,372	2,825	10½	297,000	7,400	Vacuum Oil Corporation	New York, N. Y.
Charlie Watson (oil)	1,769	710	11	60,551	10,000	Standard Oil Co of California (Inc.)	San Francisco, Calif.
Chester Sun	6,669	3,000	10½	380,900	9,000	Sun Oil Co. (Inc.)	Philadelphia, Pa.
Chilbar	5,030	2,070	11	380,000	12,370	Chile Steamship Co. (Inc.)	New York, N. Y.
Chiloil	5,107	2,070	11	387,000	12,370	....do	Do.
Chilsco	5,104	2,157	10	380,000	12,370	....do	Do.
China Arrow	8,405	4,185	11	418,959	9,900	Standard Transportation Co. (Inc.)	Do.
Cities Service Fuel	5,343	2,270	10	462,000	10,000	Cities Service Transportation Co. (Inc.)	Do.
Clement Smith	7,366	1,949	10	238,850	8,000	Oil Transport Co (Inc.)	Wilmington, Del.
Coalinga	875	396	9	34,486	2,000	Associated Oil Co. (Inc.)	San Francisco, Calif.
Colonial Beacon (oil)	1,244	687	8½	13,550	3,000	Beacon Oil Co. (Inc.)	Boston, Mass.
Contra Costa (oil)	832	320	5½	11,424	1,200	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
Cramoton Andersen	6,998	3,163	11	309,674	7,617	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Crudoil	1,370	706	8½	32,340	1,000	Mexican Petroleum Corporation	New York, N. Y.
Currier	4,711	2,138	10	109,932	5,000	Gulf Refining Co. (Inc.)	Port Arthur, Tex.

a Excluding bunkers. b Tons, coal only.

UNITED STATES TANKER REGISTRY

Vessels of 500 gross tons and over equipped for carrying petroleum in bulk—Continued.

STEAM AND MOTOR VESSELS—Continued.

Name of vessel.	Gross tons.	Tankage.	Speed.	Bunker capacity.	Cruising radius.	Name of owner.	Home port.
		1,000 gals.	*Knots.*	*Gallons.*	*Miles.*		
D. G. Scofield	7,074	3,322	11½	451,296	13,160	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
Dannedalke	4,310	1,949	10	253,218	7,900	Dannedalke Steamship Corporation	Philadelphia, Pa.
Darden	5,189	1,790	10	370,000	8,470	United States Shipping Board	New York, N. Y.
Dartford	5,186	2,126	10	370,000	8,470	Gladstone Transportation Co. (Inc.)	Do
David McKelvy	6,820	2,253	10½	499,972	12,500	Tide Water Oil Co. (Inc.)	Do
Dean Emery	6,664	3,550	10½	380,800	9,000	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Delaware Sun	8,964	4,315	10½	681,988	17,500	Sun Oil Co. (Inc.)	Philadelphia, Pa.
Derbyline	7,063	3,431	11	307,400	6,615	Texas Co. (Inc.)	Wilmington, Del.
Deroche	7,058	3,370	11	307,400	6,615	Union Oil Co. (Inc.)	Los Angeles, Calif.
Dillwyn	6,913	3,370	11	307,400	6,615	Malston Co. (Inc.)	Wilmington, Del.
Dilworth	7,045	3,138	11	307,400	6,615	United States Shipping Board	San Francisco, Calif.
Dinsmore (concrete)	6,144	1,335	10½	263,040	5,250	do	Jacksonville, Fla.
Dirigo	6,530	3,216	11	419,533	11,035	Texas Co. (Inc.)	Wilmington, Del.
District of Columbia	7,641	3,492	10	407,088	8,800	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
Dixiana	4,323	1,300	9	214,014	6,000	American Sugar Transit Corporation	New York N. Y.
Dixie Arrow	8,046	4,185	10½	408,096	9,100	Standard Transportation Co. (Inc.)	Do.
Dora	5,036	1,300	11½	344,963	9,000	Kobul Steamship Corporation	Do.
Dulcino	2,951	700	10	91,560	3,000	American Sugar Transit Corporation	Do.
Dungannon	7,257	3,060	10	538,946	7,700	Texas Co. (Inc.)	Wilmington, Del.
Durango	7,125	3,060	10	538,946	7,700	Malston Co (Inc.)	Do.
E. J. Sadler	9,638	5,101	11	515,000	10,250	Standard Shipping Co. (Inc.)	Do.
E. M. Clark	9,647	5,015	11	516,000	12,000	Standard Oil Co. (Inc.)	New York, N. Y.
E. R. Kemp	4,887	2,198	10½	337,630	9,000	Sinclair Navigation Co. (Inc.)	Do.
E. T. Bedford	9,563	5,101	11	512,148	11,100	Standard Shipping Co. (Inc.)	Wilmington, Del.
E. W. Sinclair	4,887	2,198	10½	337,630	9,000	Sinclair Navigation Co. (Inc.)	New York, N. Y.
Edward L. Doheny	5,871	2,627	11	263,130	7,750	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Edward L. Shea	6,546	3,115	11½	378,000	9,000	Tide Water Associated Transport Corporation	Wilmington, Del.
Elisha Walker	7,252	3,236	10½	420,780	14,000	Pan American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
El Segundo	3,663	1,363	11	215,460	9,029	Standard Oil Co. of California (Inc.)	Do.
Emidio	6,900	3,060	11	538,946	12,566	Standard Transportation Co. (Inc.)	New York, N. Y.
Emma H. Coppage	7,017	2,882	9	336,000	10,000	California Petroleum Steamship Corporation	Los Angeles, Calif.
Empire Arrow	8,046	4,185	10½	408,096	9,100	Standard Transportation Co. (Inc.)	New York, N. Y.
Eocene	2,217	800	7½	107,150	3,648	do	Do.
Eurana	6,651	3,115	11½	359,000	8,000	Gulf Refining Co. (Inc.)	Port Arthur, Tex.
Eugene V. R. Thayer	7,137	3,493	11	414,690	13,500	Sinclair Navigation Co. (Inc.)	New York, N. Y
F. H. Hillman	9,835	4,960	10½	306,155	7,617	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
F. H. Wickett	7,753	4,183	11	352,800	8,000	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
F. Q. Barstow	9,003	5,014	11½	472,000	12,100	Standard Shipping Co. (Inc.)	Wilmington, Del.
Federal	2,881	1,206	8½	252,000	10,000	Petroleum Navigation Co. (Inc.)	Houston, Tex.
Francis E. Powell	7,096	3,492	10	395,000	2,600	Atlantic Refining Co. (Inc.)	Philadelphia, Pa.
Frank G. Drum	7,048	3,163	11	309,678	7,617	Associated Oil Co. (Inc.)	San Francisco, Calif.
Frank H. Buck	6,076	2,686	9	92,862	2,650	do	Do.
Franklin	2,841	1,666	10½	180,260	6,500	Galena Navigation Co. (Inc.)	Houston, Tex.
Franklin K. Lane	6,998	3,062	11	309,678	7,617	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Fred W. Weller	9,485	4,999	10	442,000	10,780	Standard Shipping Co. (Inc.)	Wilmington, Del.
Frederic Ewing	6,773	3,220	10½	193,662	8,300	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Frederic R. Kellogg	7,127	2,734	11	135,826	7,968	do	Do.
Freeport Sulphur No. 6	4,487	1,607	10	224,120	8,300	Freeport Sulphur Transportation Co. (Inc.)	New York, N. Y
Fueloil	1,370	706	7	32,340	2,460	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Galena	5,102	2,070	11	214,115	5,200	Galena Navigation Co. (Inc.)	Wilmington, Del.
Gargoyle	7,002	3,445	11	452,214	6,000	Vacuum Oil Corporation	New York, N. Y.
Gene Crawley	3,184	1,320	9½	132,846	5,100	Sinclair Gulf Corporation	Do.
George G. Henry	6,265	2,690	11	295,212	6,135	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Geo. H. Jones	6,689	3,370	10½	380,800	9,000	Standard Shipping Co. (Inc.)	Wilmington, Del.
George W. Barnes	6,531	2,271	10½	323,400	9,561	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Gladsybe	5,186	1,790	10	370,000	13,980	U. S.-Mex. Oil Corporation	New York, N. Y.
Glenpool	5,256	2,600	9½	273,000	7,080	Standard Shipping Co. (Inc.)	Wilmington, Del.
Gold Shell	5,614	2,905	10	329,000	5,200	Shell Line (Inc.)	Do.
Gulfbreeze	6,651	3,115	11½	332,800	5,000	Gulf Refining Co. (Inc.)	Port Arthur, Tex.
Gulfcoast	5,188	2,410	11½	201,012	7,500	do	Do.
Gulfcrest	8,952	4,443	11½	298,910	17,000	do	Do.
Gulfking	6,560	3,119	11½	273,714	6,000	do	Do.
Gulfland	5,276	2,410	11½	201,012	7,500	do	Do.
Gulflight	5,188	2,410	11½	201,012	7,500	do	Do.
Gulfmaid	5,225	2,410	11½	201,012	7,500	do	Do.
Gulfoil	5,188	2,410	11½	201,012	7,500	do	Do.
Gulfpoint	6,972	3,370	11	430,000	10,000	do	Do.
Gulfpride	12,510	6,150	11	226,000	11,400	do	Do.
Gulfprince	6,560	3,119	11½	273,714	6,000	do	Do.
Gulfqueen	6,795	3,125	11½	273,860	7,500	do	Do.
Gulfstar	7,239	3,366	10½	388,584	5,000	do	Do.
Gulfstate	7,216	3,050	10	538,946	7,700	do	Do.
Gulfstream	5,188	2,410	11½	201,012	7,500	do	Do.
Gulftrade	6,859	3,366	10½	321,252	8,000	do	Do.
Gulf of Mexico	7,807	4,390	11	280,932	7,700	do	Do.
Gulf of Venezuela (oil)	6,629	3,377	9½	218,400	7,200	do	Do.
H. C. Folger	7,086	3,268	10½	443,394	11,000	Atlantic Refining Co. (Inc.)	Philadelphia, Pa
H. H. Rogers	8,807	5,488	11½	475,000	12,100	Standard Shipping Co. (Inc.)	Wilmington, Del.
H. M. Flagler	8,207	3,767	11½	349,000	16,000	Standard Oil Co. of New Jersey (Inc.)	New York, N. Y.
H. M. Storey	9,838	4,958	10½	306,155	7,617	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
H. T. Harper (oil)	3,803	1,892	11	184,170	5,000	do	Do.
Hadnot	6,258	3,218	10½	317,560	8,253	Cities Service Transportation Co. (Inc.)	New York, N. Y.
Hagan	6,373	3,218	10½	317,560	8,253	United States Shipping Board	Boston, Mass.
Hagood	6,866	3,138	9½	468,148	13,400	Cities Service Transportation Co. (Inc.)	New York, N. Y
Hahira	6,855	3,138	11	236,339	6,930	Atlantic Refining Co. (Inc.)	Philadelphia, Pa.
Halo	6,886	3,059	10	538,946	7,700	Cities Service Transportation Co. (Inc.)	New York, N. Y.
Halsey	7,088	3,060	10	535,946	7,700	Malston Co. (Inc.)	Wilmington, Del.
Hampton Roads	7,529	3,492	10	407,088	8,000	Oil Transport Co. (Inc.)	Baltimore, Md.
Harold Walker	6,353	3,298	11	205,212	7,968	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Harry Farnum	3,098	1,336	8½	143,430	5,300	Sinclair Navigation Co. (Inc.)	New York, N. Y.
Hartford Socony (oil)	1,199	680	9	15,000	3,000	Standard Transportation Co. (Inc.)	Do.
Harvester	6,532	3,216	10½	438,900	12,750	Texas Steamship Co. (Inc.)	Do.
Hawaiian Standard (el. s.) (oil)	1,217	374	9	23,772	4,263	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
Helen Olmsted	7,311	3,377	9	420,000	10,000	California Petroleum Steamship Corporation	Los Angeles, Calif.
Helen Vinmont	10,388	5,116	10½	336,000	10,000	do	Do.
Herbert G. Wylie	4,292	1,670	10½	138,180	5,000	Pan-American Petroleum & Transport Co. (Inc.)	Do.
Herbert L. Pratt	7,118	3,378	11	450,324	11,200	Atlantic Refining Co. (Inc.)	Philadelphia, Pa.
Herman Falk (oil)	7,245	3,492	10	352,800	18,000	Oil Transport Co. (Inc.)	Baltimore, Md.
Hoven	7,071	3,138	11	468,148	13,400	Beacon Oil Co. (Inc.)	Boston, Mass.
Hoxbar	4,958	3,138	11	468,148	13,400	Malston Co. (Inc.)	Wilmington, Del.
Hugoton	6,943	3,138	11	468,148	13,400	do	Do.

UNITED STATES TANKER REGISTRY

Vessels of 500 gross tons and over equipped for carrying petroleum in bulk—Continued.

STEAM AND MOTOR VESSELS—Continued.

Name of vessel	Gross tons.	Tankage.	Speed.	Bunker capacity.	Cruising radius.	Name of owner.	Home port.
		1,000 gals.	*Knots.*	*Gallons.*	*Miles.*		
Huguenot	6,904	3,138	11	468,148	13,400	Huguenot Steamship Corporation	Wilmington, Del.
I. C. White	7,013	3,236	10½	420,780	14,000	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Illinois	6,688	3,207	10½	438,900	13,000	Texas Co. (Inc.)	Wilmington, Del.
Imlay	7,005	2,883	11	262,400	7,220	Malston Co. (Inc.)	Do.
India Arrow	8,327	3,677	11	317,625	10,900	Standard Transportation Co. (Inc.)	New York, N. Y.
J. A. Bostwick	7,929	3,710	10½	347,000	9,580	Standard Shipping Co. (Inc.)	Wilmington, Del.
J. A. Moffett	6,521	2,701	10½	512,400	15,372	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
J. A. Moffet, jr. (oil)	9,482	5,101	11	512,148	11,100	Standard Shipping Co. (Inc.)	Wilmington, Del.
J. C. Donnell	9,783	5,012	10½	280,560	7,000	Atlantic Refining Co. (Inc.)	Philadelphia, Pa.
J. C. Fitzsimmons	6,715	3,150	10½	312,000	14,000	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
J. E. O'Neil	7,070	3,378	11	450,324	11,200	Atlantic Refining Co. (Inc.)	Philadelphia, Pa.
J. H. Senior (el. s.) (oil)	1,155	563	8½	7,800	1,630	Standard Shipping Co. (Inc.)	Baltimore, Md.
J. M. Danziger	6,093	2,690	11	294,000	7,968	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
J. N. Pew	9,074	4,309	10½	694,254	17,500	Sun Oil Co. (Inc.)	Philadelphia, Pa.
J. W. Van Dyke (el. s.) (oil)	4,928	2,411	10	363,195	11,900	Atlantic Refining Co. (Inc.)	Do.
J. Fletcher Farrell	7,061	3,057	11	414,691	11,140	Sinclair Navigation Co. (Inc.)	New York, N. Y.
J. Oswald Boyd	1,806	1,273	8	75,600	3,000	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
James McGee	9,551	5,012	11½	490,000	12,400	Standard Shipping Co. (Inc.)	Wilmington, Del.
Japan Arrow	8,327	4,185	11	418,959	9,900	Standard Transportation Co. (Inc.)	New York, N. Y.
Java Arrow	8,327	3,679	11	418,959	9,900	....do	Do.
John Worthington	8,194	3,851	10	450,804	12,150	Standard Shipping Co. (Inc.)	Wilmington, Del.
John D. Archbold	14,054	5,915	10½	618,000	10,500	....do	Do.
Joseph Seep	6,972	3,370	10½	381,070	10,000	....do	Do.
Joseph M. Cudahy	7,052	3,253	10½	509,950	10,000	Sinclair Navigation Co. (Inc.)	Do.
K. R. Kingsbury	7,251	3,596	11	283,558	7,368	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
Kekoskee	5,124	2,070	11	211,593	5,200	Richfield Oil Co. (Inc.)	Los Angeles, Calif.
Kewanee	3,550	1,306	10½	247,185	4,500	Associated Oil Co. (Inc.)	San Francisco, Calif.
Kishacoquillas	5,039	1,300	11½	344,963	9,000	Steamer Kishacoquillas Corporation	New York, N. Y.
L. J. Drake	6,693	3,145	10	327,000	9,850	Standard Shipping Co. (Inc.)	Wilmington, Del.
La Brea	6,665	2,875	10½	355,152	11,700	Union Oil Co. of California (Inc.)	Los Angeles, Calif.
La Placentia	8,272	3,778	11	354,274	6,100	....do	Do.
La Purisima	5,091	2,411	11	300,000	3,276	....do	Do.
Larry Doheny	6,805	3,150	11	510,000	15,000	Petroleum Securities Co. (Inc.)	Do.
Lebec	6,900	3,066	11	538,946	12,566	Standard Transportation Co. (Inc.)	New York, N. Y.
Lebore	5,289	5,940	11½	502,819	6,541	Guaranty Trust Co. (Inc.)	Do.
Levant Arrow	8,046	4,185	10½	408,096	9,100	Standard Transportation Co. (Inc.)	Do.
Liebre	7,057	3,537	11	274,426	6,439	....do	Do.
Lightburne	6,541	3,216	10½	438,900	13,104	Texas Company (Inc.)	Wilmington, Del.
Ligonier	3,737	1,250	10½	189,000	9,500	Gulf Refining Co. (Inc.)	Port Arthur, Tex.
Lio (oil)	7,120	4,351	10	407,088	8,800	Standard Transportation Co. (Inc.)	New York, N. Y.
Livingston Roe	8,194	3,851	10	450,786	13,946	Standard Shipping Co. (Inc.)	Wilmington, Del.
Los Alamos (oil)	3,262	1,550	9½	239,000	16,000	Standard Transportation Co. (Inc.)	New York, N. Y.
Los Angeles	6,752	2,875	10½	355,152	11,700	Union Oil Co. of California (Inc.)	Los Angeles, Calif.
Louisiana	2,849	1,482	8½	129,234	6,500	Texas Co. (Inc.)	Wilmington, Del.
Lubrico	6,956	3,377	11	262,400	7,312	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
M. F. Elliott	7,053	3,377	11	436,700	12,000	Standard Shipping Co. (Inc.)	Wilmington, Del.
McKittrick	2,702	850	10	126,000	4,500	Associated Oil Co. (Inc.)	San Francisco, Calif.
Malabar	8,374	3,240	11	308,000	7,700	Malabar Steamship Co. (Inc.)	Wilmington, Del.
Malacca	7,051	3,492	10	338,000	3,800	Malacca Steamship Co. (Inc.)	Do.
Manatawny	5,030	3,892	11½	344,963	9,000	Manatawny Steamship Corporation	Do.
Mary Ellen O'Neil (oil)	11,628	5,950	11½	430,038	16,632	California Petroleum Steamship Corporation	Los Angeles, Calif.
Mary Luckenbach	5,607	2,233	10½	123,300	3,300	Luckenbach Steamship Co. (Inc.)	New York, N. Y.
Matinicock	6,769	2,850	9½	340,000	9,120	Matinicock Steamship Co. (Inc.)	Wilmington, Del.
Mericos H. Whittier	6,972	3,138	11	468,148	13,400	Associated Oil Co. (Inc.)	San Francisco, Calif.
Meton	7,311	3,377	9	262,400	7,220	United States Shipping Board	Do.
Mevania	6,947	3,377	9	262,400	7,220	Malston Co. (Inc.)	Wilmington, Del.
Mexoil	1,370	706	8½	32,340	885	Huasteca Petroleum Co. (Inc.)	Los Angeles, Calif.
Midway	978	420	9	24,926	1,500	Associated Oil Co. (Inc.)	San Francisco, Calif.
Mojave	6,900	3,060	11	538,944	12,566	Standard Transportation Co. (Inc.)	New York, N. Y.
Montebello	8,272	3,378	11	354,274	6,100	Union Oil Co. of California (Inc.)	Los Angeles, Calif.
Muskogee	7,034	3,320	10½	474,000	13,100	Muskogee Steamship Co.	Wilmington, Del.
Nelson	4,744	1,830	10	189,000	5,000	Cuba Distilling Co. (Inc.)	New York, N. Y.
New Jersey	6,718	3,226	10½	438,900	11,000	Texas Co. (Inc.)	Wilmington, Del.
New York	6,493	3,215	11	323,912	10,934	....do	Do.
Nora	9,620	5,003	10½	319,751	7,000	Grace Steamship Co. (Inc.)	New York, N. Y.
Norman Bridge	4,323	1,764	11	211,680	6,000	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
O. T. Waring	5,579	2,784	11	278,000	9,500	Standard Shipping Co. (Inc.)	Wilmington, Del.
Occidental	6,533	3,200	10½	438,900	11,000	Texas Steamship Co. (Inc.)	New York, N. Y.
Olean	7,118	3,205	11½	405,594	10,000	Vacuum Oil Corporation	Do.
Oleum	2,998	1,423	9½	47,040	1,350	Union Oil Co. of California (Inc.)	Los Angeles, Calif.
Olympic	5,335	2,020	9½	363,000	14,500	Olympic Steamship Co.	Seattle, Wash.
Oscar D. Bennett	4,710	1,999	11	176,400	5,148	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Oswego Socony (oil)	1,199	680	9	14,968	4,000	Standard Transportation Co. (Inc.)	New York, N. Y.
Overbrook	5,724	3,301	10½	305,785	8,000	Gladstone Transportation Co. (Inc.)	Do.
P. J. Reilly	3,376	1,905	9	33,000	3,000	National Oil Transport Co. (Inc.)	Port Arthur, Tex.
Panoil	1,370	610	8½	29,400	2,500	Huasteca Petroleum Co. (Inc.)	Los Angeles, Calif.
Papoose	6,177	2,850	11	281,940	10,000	Petroleum Navigation Co. (Inc.)	Houston, Tex.
Pat Doheny	6,998	3,252	10½	420,000	10,000	Petroleum Securities Co. (Inc.)	Los Angeles, Calif.
Paul H. Harwood	6,520	2,690	11	199,038	6,135	Pan-American Petroleum & Transport Co. (Inc.)	Do.
Paul Shoup	6,816	3,380	10½	401,131	10,450	Associated Oil Co. (Inc.)	San Francisco, Calif.
Paulsboro	6,698	3,170	10½	478,000	12,000	Vacuum Oil Corporation	New York, N. Y.
Pearl Shell	5,614	2,905	10	329,000	5,200	Shell Line (Inc.)	Wilmington, Del.
Pennsylvania	6,492	3,215	11	438,900	12,276	Texas Steamship Co. (Inc.)	New York, N. Y.
Pennsylvania Sun	8,862	4,315	13½	554,188	12,880	Sun Oil Co. (Inc.)	Philadelphia, Pa.
Philip Publicker	2,397	652	9	119,400	7,000	Adelphia Steamship Corporation	Do.
Phoenix	5,731	3,301	10½	305,785	8,000	American Tankers Corporation	Boston, Mass.
Pinthis (oil)	1,111	500	16	18,560	1,500	New England Oil Refining Co. (Inc.)	Do.
Pioneer	5,075	2,230	9	313,000	13,200	Standard Shipping Co. (Inc.)	Wilmington, Del.
Point Breeze (el. s.) (oil)	4,756	2,412	10	235,000	21,000	Atlantic Refining Co. (Inc.)	Philadelphia, Pa.
Polarine	4,046	1,940	8½	254,000	11,400	Standard Shipping Co. (Inc.)	Wilmington, Del.
Princeton	5,081	2,420	9	313,000	13,200	....do	Do.
Providence Socony (oil)	1,199	680	10	15,000	3,000	Standard Transportation Co. (Inc.)	New York, N. Y.
Pueblo	4,469	1,948	10	272,000	5,000	Petroleum Navigation Co. (Inc.)	Houston, Tex.
R. D. Leonard	1,778	1,000	9½	47,800	3,500	Atlantic Refining Co. (Inc.)	Philadelphia, Pa.
R. J. Hanna	7,095	3,493	11	268,937	6,310	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
R. W. Stewart	7,530	3,960	11	252,000	7,000	Pan-American Petroleum & Transport Co. (Inc.)	Los Angeles, Calif.
Radiant	2,487	1,000	11	107,160	3,531	Union Oil Co. of California (Inc.)	Do.
Rayo	3,663	1,000	7½	185,000	2,200	Standard Transportation Co. (Inc.)	New York, N. Y.
Reaper	6,699	3,213	10½	438,900	13,104	Texas Steamship Co. (Inc.)	Do.
Republic	5,056	3,700	11	385,251	10,357	Petroleum Navigation Co. (Inc.)	Houston, Tex.
Richfield	2,366	1,000	7½	75,000	2,200	Richfield Oil Co. (Inc.)	Los Angeles, Calif.
Richlube (el. s.) (oil)	609	204	8½	4,200	1,800	....do	Do.

UNITED STATES TANKER REGISTRY

Vessels of 500 gross tons and over equipped for carrying petroleum in bulk—Continued.

STEAM AND MOTOR VESSELS—Continued.

Name of vessel.	Gross tons.	Tankage.	Speed.	Bunker capacity.	Cruising radius.	Name of owner.	Home port.
		1,000 gals.	*Knots.*	*Gallons.*	*Miles.*		
Richmond	6,444	2,701	11½	508,200	15,246	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
Roanoke	6,541	3,215	10½	438,900	12,276	Texas Steamship Co. (Inc.)	New York, N. Y.
Robert E. Hopkins	6,624	3,380	10½	401,131	10,450	Tide Water Oil Co. (Inc.)	Do.
Rochester	6,836	3,138	11	260,716	7,645	Vacuum Oil Corporation	Do.
Rochester Socony (oil)	533	342	7½	4,000	1,500	Standard Oil Co. of New York (Inc.)	Do.
Rome Socony (oil)	1,199	680	9	14,968	4,000	Standard Transportation Co. (Inc.)	Do.
Romulus	5,104	2,071	11	214,115	5,200	Steamer Romulus Corporation	Do.
Royal Arrow	7,794	4,100	10½	356,730	9,108	Standard Transportation Co. (Inc.)	Wilmington, Del.
S. B. Hunt	6,840	3,370	11	380,800	9,000	Standard Shipping Co. (Inc.)	Los Angeles, Calif.
S. M. Spalding	7,175	2,690	11	205,212	6,135	Pan-American Petroleum & Transport Co. (Inc.)	San Francisco, Calif.
S. C. T. Dodd	7,054	3,377	11	435,700	15,000	Standard Oil Co. of California (Inc.)	Philadelphia, Pa.
Sabine Sun	6,728	3,090	10½	380,800	9,000	Sun Oil Co. (Inc.)	San Francisco, Calif.
Salina	7,311	3,377	9	262,400	7,220	United States Shipping Board	New York, N. Y.
Samuel L. Fuller	7,052	3,252	10½	509,950	10,000	Sinclair Navigation Co. (Inc.)	Do.
Samuel Q. Brown	6,624	3,380	10½	401,131	10,450	Tide Water Oil Co. (Inc.)	Los Angeles, Calif.
Santa Maria	8,088	3,108	11½	504,000	7,500	Union Oil Co. of California (Inc.)	New York, N. Y.
Schenectady Socony (oil)	1,199	680	9	14,968	4,000	Standard Transportation Co. (Inc.)	Philadelphia, Pa.
Sharon (el. s.) (oil)	4,917	2,412	11	363,195	11,500	Atlantic Refining Co. (Inc.)	Wilmington, Del.
Shenandoah	6,531	3,216	11	419,533	11,035	Texas Co. (Inc.)	New York, N. Y.
Shreveport	6,822	3,060	11	236,000	6,740	Cities Service Refining Transport Co. (Inc.)	Wilmington, Del.
Silver Shell	5,605	2,905	10	300,000	10,000	Shell Line (Inc.)	New York, N. Y.
Socony	3,653	1,800	8	175,960	5,179	Standard Transportation Co. (Inc.)	Do.
Socony 5 (oil)	830	500	6	4,400	1,700	....do	Do.
Socony 6 (oil)	850	425	6½	8,900	1,500	Standard Oil Co. of New York (Inc.)	San Francisco, Calif.
Solana	6,702	3,201	11	353,600	8,000	Associated Oil Co. (Inc.)	New York, N. Y.
Solitaire (oil)	3,350	1,617	8½	124,000	12,000	Texas Steamship Co. (Inc.)	Wilmington, Del.
Standard	9,724	5,000	10½	421,000	9,330	Standard Shipping Co. (Inc.)	New York, N. Y.
Standard Arrow	7,794	4,100	10½	356,730	9,108	Standard Transportation Co. (Inc.)	San Francisco, Calif.
Standard Service (el. s.)	1,271	521	9	23,556	4,725	Standard Oil Co. of California (Inc.)	Houston, Tex.
Standtow, No. 1	1,955	968	5	122,000	1,000	American Petroleum Co. (Inc.)	San Francisco, Calif.
Stockton	7,294	3,377	9	262,400	7,220	United States Shipping Board	Baltimore, Md.
Sucrosa	5,532	2,270	10	189,000	5,000	Curtis Bay Copper & Iron Works (Inc.)	Philadelphia, Pa.
Sunbeam	6,664	3,550	10½	380,800	9,000	Sun Oil Co. (Inc.)	Do.
Sunoco (oil)	1,213	649	9	14,000	3,500	....do	Do.
Sunoil (oil)	8,946	4,801	10½	169,286	12,000	....do	Wilmington, Del.
Swiftarrow	8,206	3,041	9½	346,920	10,500	New England Oil Steamship Co. (Inc.)	Do.
Swifteagle	8,206	3,041	9½	346,920	10,500	....do	Do.
Swiftlight	8,206	3,041	9½	346,920	10,500	....do	Do.
Swiftscout	8,206	3,041	9½	346,920	10,500	....do	Do.
Swiftsure	8,206	3,041	9½	346,920	8,500	....do	Do.
Swiftwind	8,206	3,041	9½	346,920	10,500	....do	New York, N. Y.
Sylvan Arrow	7,797	4,100	11	356,730	9,108	Standard Transportation Co. (Inc.)	Do.
Syracuse Socony (oil)	533	342	9	4,000	1,500	Standard Oil Co. of New York (Inc.)	Wilmington, Del.
T. J. Williams	8,211	3,721	10½	350,648	12,480	Standard Shipping Co. (Inc.)	New York, N. Y.
Tamiahua	11,170	5,498	11	437,136	8,229	Southern Pacific Co. (Inc.)	Do.
Tejon	7,004	4,349	9	262,400	7,220	Standard Transportation Co. (Inc.)	Wilmington Del.
Texaco 145 (oil)	500	251	8			Texas Co. (Inc.)	Do.
Texas	6,480	3,215	11	420,000	8,000	....do	Do.
Thomas H. Wheeler	7,053	3,377	11	436,700	13,000	Standard Shipping Co. (Inc.)	New York, N. Y.
Topila	5,125	2,400	11	102,650	5,000	Southern Pacific Co. (Inc.)	Do.
Torres	4,943	2,400	11	102,650	5,000	....do	Do.
Tracy Brothers	5,731	3,301	10½	308,785	8,000	M. & J. Tracy (Inc.)	Wilmington, Del.
Trimountain	6,385	3,218	10½	317,560	8,253	Trimountain Steamship Corporation	Port Arthur, Tex.
Trinidadian	2,410	1,060	9½	86,100	4,500	Gulf Refining Co. (Inc.)	New York, N. Y.
Troy Socony (oil)	943	572	10	13,386	4,800	Standard Transportation Co. (Inc.)	San Francisco, Calif.
Tulsagas	7,120	3,492	10	407,088	8,800	Associated Oil Co. (Inc.)	Philadelphia, Pa.
Tustem	6,882	3,377	11	262,400	7,312	Atlantic Refining Co. (Inc.)	Los Angeles, Calif.
Utacarbon	7,076	3,059	10	538,946	7,700	Union Oil Co. of California (Inc.)	New York, N. Y.
Utica Socony (Oil)	533	342	7½	4,000	1,500	Standard Oil Co. of New York (Inc.)	Do.
Vaba	5,030	3,892	11½	344,963	9,000	Steamer Vaba Corporation	Do.
Vacoil	4,218	1,941	10	253,218	9,840	Vacuum Oil Corporation	Do.
Vacuum	7,009	2,800	11	262,400	6,100	....do	Do.
Veedol	1,224	550	9	70,000	2,000	Tide Water Oil Co. (Inc.)	Do.
Vesta	3,663	1,500	11	175,960	5,179	Standard Transportation Co. (Inc.)	Do.
Virginia	6,494	3,215	11	438,900	12,276	Texas Steamship Co. (Inc.)	Wilmington, Del.
W. C. Teagle	9,551	5,012	11½	490,000	12,400	Standard Shipping Co. (Inc.)	Philadelphia, Pa.
W. D. Anderson	5,168	2,223	10	370,000	13,980	Atlantic Refining Co. (Inc.)	Baltimore, Md.
W. E. Hutton	7,076	3,060	10	538,946	7,700	Pure Oil Steamship Co. (Inc.)	Do.
W. F. Burdell	7,044	3,060	11	538,946	7,617	....do	Wilmington, Del.
W. H. Libby	8,143	3,851	10	450,786	13,496	Standard Shipping Co. (Inc.)	Do.
W. H. Tilford	5,579	2,784	9½	278,000	9,360	....do	Do.
W. J. Hanna	7,110	3,370	10½	381,070	9,000	....do	New York, N. Y.
W. L. Connelly	3,098	1,336	8½	143,430	5,300	Sinclair Navigation Co. (Inc.)	Los Angeles, Calif.
W. L. Steed	6,409	3,100	10½	295,882	8,520	Pan-American Petroleum & Transport Co. (Inc.)	Philadelphia, Pa.
W. M. Burton	7,094	3,378	11	450,324	11,200	Atlantic Refining Co. (Inc.)	Do.
W. M. Irish	7,123	3,378	11	450,324	11,200	....do	San Francisco, Calif.
W. S. Miller	6,984	3,138	11	494,159	7,617	Standard Oil Co. of California (Inc.)	Do.
W. S. Rheem	9,838	4,959	10½	306,155	7,617	....do	Baltimore, Md.
W. W. Mills	6,816	3,380	10½	401,131	10,450	Pure Oil Steamship Co. (Inc.)	Wilmington, Del.
Walter Jennings	9,563	5,101	11	512,148	11,100	Standard Shipping Co. (Inc.)	Los Angeles, Calif.
Warwick	4,469	1,949	10	253,218	7,900	Union Oil Co. (Inc.)	Do.
Washtenaw	2,896	940	10	110,250	3,500	California Petroleum Steamship Corporation	New York, N. Y.
Watertown	6,315	3,218	10½	317,560	8,253	Cities Service Transportation Co. (Inc.)	Los Angeles, Calif.
William Green	6,353	2,690	11	294,000	7,968	Pan-American Petroleum & Transport Co. (Inc.)	Baltimore, Md.
William Isom	3,321	1,650	9½	161,332	10,000	Cuba Distilling Co. (Inc.)	Wilmington, Del.
Wm. Rockefeller	14,054	6,035	10½	630,000	10,500	Standard Shipping Co. (Inc.)	San Francisco, Calif.
Wm. F. Herrin	4,938	2,099	9½	35,406	1,000	Associated Oil Co. (Inc.)	Wilmington, Del.
William F. Humphrey	7,982	4,185	11	277,000	6,600	Tide Water Associated Transport Corporation	Do.
Wm. G. Warden	9,114	5,014	11½	472,000	12,100	Standard Shipping Co. (Inc.)	Los Angeles, Calif.
William H. Doheny	6,994	3,163	11	531,224	15,000	Pan-American Petroleum & Transport Co. (Inc.)	New York, N. Y.
Wm. Boyce Thompson	7,061	3,057	11	400,000	11,760	Sinclair Navigation Co. (Inc.)	Port Arthur, Tex.
Winifred	2,551	850	8½	161,280	7,500	Gulf Refining Co. (Inc.)	Los Angeles, Calif.
Winifred O'Donnell	7,069	3,138	11	250,000	3,500	California Petroleum Steamship Corporation	New York, N. Y.
Yankee Arrow	8,046	4,185	10½	408,096	9,100	Standard Transportation Co. (Inc.)	Do.
Yorba Linda	6,900	3,138	11	494,159	7,617	....do	
Total, 385 vessels	2,313,834	1,090,552					

UNITED STATES TANKER REGISTRY

Vessels of 500 gross tons and over equipped for carrying petroleum in bulk—Continued.

SAILING VESSELS.

Name of vessel.	Gross tons.	Tankage.	Name of owner.	Home port.
		1,000 gals.		
Conemaugh	1,774	756	Gulf Refining Co. (Inc.)	Port Arthur, Tex.
Connemut	1,690	790	....do	Do.
Dallas	1,148	651	Westwego Petroleum Barge Line (Inc.)	New Orleans, La.
Diamond Head	1,012	191	General Petroleum Corporation	Seattle, Wash.
Ellora	1,751	700	Alonzo Smith	Houston, Tex.
Juniata	1,432	658	Gulf Refining Co. (Inc.)	Port Arthur, Tex.
Magnolia	681	336	Texas Co. (Inc.)	Wilmington, Del.
Marion Chilcott	1,737	706	British Molasses Co. (Inc.)	New York, N. Y.
Monongahela	1,677	850	Gulf Refining Co. (Inc.)	Port Arthur, Tex.
Monterey	1,854	815	Charles Nelson Co. (Inc.)	San Francisco, Calif.
Ohio	1,677	850	Gulf Refining Co. (Inc.)	Port Arthur, Tex.
Rioco No. 1	2,452	1,250	Richfield Oil Co. (Inc.)	Los Angeles, Calif.
S. O. Co. No. 93	2,473	1,200	Standard Oil Co. of California (Inc.)	San Francisco, Calif.
S. O. Co. No. 95	4,212	2,225	....do	Do.
Santa Paula	650	340	Mission Transportation & Refining Co (Inc.)	Los Angeles, Calif.
Shenango	2,365	1,250	Gulf Refining Co. (Inc.)	Port Arthur, Tex.
Socony 56	589	300	Standard Transportation Co. (Inc.)	New York, N. Y.
Socony 58	1,643	750	....do	Do.
Socony 81	1,774	900	....do	Do.
Socony 82	2,320	1,250	....do	Do.
Socony 83	2,440	1,250	....do	Do.
Socony 84	2,441	1,250	Standard Oil Co. of New York	Do.
Socony 85	2,441	1,250	Standard Transportation Co. (Inc.)	Do.
Socony 86	1,102	600	....do	Do.
Socony 88	2,005	1,000	....do	Do.
Socony 90	2,451	1,201	....do	Do.
Socony 92	3,248	1,500	....do	Do.
Socony 94	4,167	2,225	....do	Do.
Socony 123	952	600	....do	Do.
Socony 124	952	600	....do	Do.
Sunset Una	1,189	665	Bay Towing Co. (Inc.)	Galveston, Tex
Tampico	1,994	672	Texas Co. (Inc.)	Wilmington, Del.
Tiolene	1,163	336	Sabine Towing Co. (Inc.)	Do.
Tulsa	607	336	Texas Co. (Inc)	Port Arthur, Tex.
Ulak	2,323	1,050	William C. Bickel	New York, N. Y.
W. A. Ebsen	3,328	1,344	National Oil Transportation Co. (Inc.)	Port Arthur, Tex.
W. H. Wales, jr	513	220	Atlantic Creosoting & Wood Preserving Works (Inc.)	Norfolk, Va.
Winapie	2,411	1,250	John W. Sullivan Co. (Inc.)	New York, N. Y.
Total, 38 vessels	70,636	38,280		

UNRIGGED VESSELS.

Arthur H. Merry	721	500	Kingston Holding Corporation	New York, N. Y.
Beacon Barge No 2	504	317	National Bank of Commerce in New York (Trustee)	Boston, Mass.
Chagres	1,161	588	Magnolia Petroleum Co (Inc.)	Port Arthur, Tex.
Colonial New York	501	300	National Bank of Commerce	New York, N. Y.
Erskine M. Phelps	3,029	1,311	Union Oil Co. of California	Los Angeles, Calif.
Falls of Clyde	1,909	786	General Petroleum Corporation	San Francisco, Calif.
Fred E. Hasler	721	500	....do	Do.
Galena No. 1	1,048	642	Galena Navigation Co. (Inc.)	Houston, Tex.
Ivor	798	379	Procter & Gamble Transportation Co. (Inc.)	Cincinnati, Ohio.
Jack Ray	595	336	Charles Clarke & Co	Galveston, Tex.
Lawrence J. Tomlinson	721	500	Nicholas N. Petterson	New York, N. Y.
M. P. 20	521	315	Mexican Petroleum Corporation	Galveston, Tex.
M. P. 21	521	315	....do	Do.
M. P. 22	521	315	....do	Do.
M. P. 23	521	315	....do	Do.
M. P. 24	521	294	....do	Do.
M. P. 25	521	315	....do	Do.
Magnolene	840	462	Magnolia Petroleum Co. (Inc.)	Port Arthur, Tex.
Oil Transfer No. 15	688	448	Oil Transfer Corporation	Newark, N. J.
Passaic	552	336	Gulf Refining Co. (Inc.)	Port Arthur, Tex.
Petroleum No. 2	1,048	642	American Petroleum Co. (Inc.)	Houston, Tex.
Petroleum No. 3	556	357	Petroleum Navigation Co. (Inc.)	Do.
Petroleum No. 4	556	357	....do	Do.
Petroleum No. 5	556	357	....do	Do.
Petroleum No. 6	556	357	....do	Do.
Pittsburgh	633	310	Sun Co. (Inc.)	Philadelphia, Pa.
Providence	1,159	646	Petroleum Navigation Co. (Inc.)	Houston, Tex.
Pure Detonox	1,165	600	Pure Oil Barge Co. (Inc.)	Philadelphia, Pa.
Pure Lubwell	1,296	630	Sabine Towing Co. (Inc.)	Port Arthur, Tex.
Pure Oil No. 10	1,177	600	Pure Oil Barge Co. (Inc.)	Philadelphia, Pa.
Purol	3,253	2,320	Sabine Towing Co. (Inc.)	Port Arthur, Tex.
Raritan	552	336	Gulf Refining Co. (Inc.)	Do.
S. N. 105	545	315	Sinclair Navigation Co. (Inc.)	New York, N. Y.
Sabine	560	315	D. M. Picton & Co. (Inc.)	Corpus Christi, Tex.
Seaboard No. 55	650	425	Seaboard Shipping Corporation	Wilmington, Del.
Seaboard 333	552	346	....do	Do.
Seminole	619	398	Gulf Refining Co. (Inc.)	Port Arthur, Tex.
Socony 1	526	300	Standard Oil Co. of Delaware	New York, N. Y.
Socony 2	526	300	....do	Do.
Socony 3	775	441	Magnolia Petroleum Co. (Inc.)	Port Arthur, Tex.
Socony 4	509	300	Standard Oil Co. of Delaware	New York, N. Y.
Socony 10	1,113	750	....do	Do.
Socony 11	1,113	750	....do	Do.
Socony 12	774	500	....do	Do.
Socony 14	688	448	Standard Transportation Co. (Inc.)	Do.
Socony 48	513	300	Standard Oil Co. of Delaware	Do.
Socony 57	1,381	750	Standard Transportation Co. (Inc.)	Do.
Socony 62	848	500	Standard Shipping Co. (Inc.)	Baltimore, Md.
Socony 76	797	475	Standard Transportation Co. (Inc.)	New York, N. Y.
Socony 111	1,145	750	....do	Do.
Socony 112	1,145	750	....do	Do.
Socony 120	1,198	750	....do	Do.
Socony 121	1,201	750	....do	Do.
Socony 122	1,201	750	....do	Do.
Standoil No. 3	509	314	Standard Shipping Co. (Inc.)	Baltimore, Md.
Standoil No. 4	580	306	....do	Do.
Standoil No. 5	962	652	....do	Do.
T. W. O. Co. No. 31	501	300	Beacon Transport Co. (Inc.)	New York, N. Y
Texaco 173	656	344	Texas Steamship Co. (Inc.)	Do.
Wansley	607	378	Charles Clarke & Co	Galveston, Tex.
Total, 60 vessels	56,607	29,906		

PIPE LINE TRANSPORTATION RATES

Crude Petroleum Oil from Points in The Mid-Continent Oil Field to points in Arkansas, Illinois, Indiana, Kansas, Louisiana, Missouri, Oklahoma and Texas.

NOTE—The rates shown are those in effect as of May 25, 1928 and are taken from the various tariffs of the Pipe Line Companies filed with the several Commissions. The rates shown are subject to change without other notice than as required by law.

FROM	TO	Rate
Cornie Station, Ark.	Drake, La.	15
Cornie Station, Ark.	Shreveport, La.	20
Crow, Ark.	Shreveport, La.	15
El Dorado, Ark.	Anchorage, La.	40
El Dorado, Ark.	Beaumont, Texas	45
El Dorado, Ark.	Lucas, Texas	47½
El Dorado, Ark.	Port Arthur, Texas	47½
Goodwill, Ark.	Riverport, La.	27
Louann, Ark.	Shreveport, La.	27½
Louann, Ark.	Port Arthur, Texas	50
Murphy Tank Farm, Ark.	Anchorage, La.	50
Murphy Tank Farm, Ark.	El Dorado, Ark.	10
Murphy Tank Farm, Ark.	Grand Lake, Ark.	30
Murphy Tank Farm, Ark.	Smackover, Ark.	5
Smackover, Ark.	Anchorage, La.	55
Smackover, Ark.	El Dorado, Ark.	10
Smackover, Ark.	Grand Lake, Ark.	25
Smackover, Ark.	Homer, La.	15
Smackover, Ark.	Murphy Tank Farm, Ark.	5
Smackover, Ark.	Shreveport, La.	20
Wepfer Station, Ark.	Haynesville, La.	12½
Argo Station, Kan.	Whiting, Ind.	46
Augusta, Kan.	Anchorage, La.	48¾
Augusta, Kan.	Beaumont, Texas	48¾
Boyer Station, Kan.	Arkansas City, Kan.	10
Butler County Field, Kan.	Cushing, Okla.	20
Butler County Field, Kan.	Ponca City, Okla.	12½
Cobb Station, Kan.	Bridgeport, Ill.	48
Cobb Station, Kan.	Lawrenceville, Ill.	48
Cobb Station, Kan.	Lockport, Ill.	46
Cobb Station, Kan.	Neodesha, Kan.	15
Cobb Station, Kan.	Stoy, Ill.	48
Cobb Station, Kan.	Sugar Creek, Mo.	30¾
Cobb Station, Kan.	Wood River, Ill.	37¼
Eldorado, Kan.	Fort Worth, Texas	47½
Eldorado, Kan.	Lucas, Texas	60
Eldorado, Kan.	Port Arthur, Texas	60
Foxbrush, Kan.	Fort Worth, Texas	47½
Foxbrush, Kan.	Lucas, Texas	60
Foxbrush, Kan.	Port Arthur, Texas	60
Greeley, Kan.	Bridgeport, Ill.	48
Greeley, Kan.	Lawrenceville, Ill.	48
Greeley, Kan.	Lockport, Ill.	46
Greeley, Kan.	Neodesha, Kan.	15
Greeley, Kan.	Stoy, Ill.	48
Greeley, Kan.	Sugar Creek, Mo.	30¾
Greeley, Kan.	Whiting, Ind.	46
Greeley, Kan.	Wood River, Ill.	37¼
Humboldt, Kan.	Bridgeport, Ill.	48
Humboldt, Kan.	Lawrenceville, Ill.	48
Humboldt, Kan.	Lockport, Ill.	46
Humboldt, Kan.	Neodesha, Kan.	15
Humboldt, Kan.	Stoy, Ill.	48
Humboldt, Kan.	Sugar Creek, Mo.	30¾
Humboldt, Kan.	Whiting, Ind.	46
Humboldt, Kan.	Wood River, Ill.	37¼
Redell, Kan.	Bridgeport, Ill.	48
Redell, Kan.	Lawrenceville, Ill.	48
Redell, Kan.	Lockport, Ill.	46
Redell, Kan.	Neodesha, Kan.	15
Redell, Kan.	Stoy, Ill.	48
Redell, Kan.	Sugar Creek, Mo.	30¾
Redell, Kan.	Whiting, Ind.	46
Redell, Kan.	Wood River, Ill.	37¼
Teeter Station, Kan.	Boyer Station, Kan.	10
Teeter Station, Kan.	Sallyards Station, Kan.	5
Sallyards Station, Kan.	Boyer Station, Kan.	5
Winfield, Kan.	Fort Worth, Texas	47½
Winfield, Kan.	Lucas, Texas	60
Winfield, Kan.	Port Arthur, Texas	60
Bellvue, La.	Princeton, La.	5
Bull Bayou, La.	Beaumont, Texas	20
Bull Bayou, La.	Port Arthur, Texas	25
Caddo, La.	Anchorage, La.	20
Caddo, La.	Lucas, Texas	25
Caddo, La.	Mooringsport, La.	12½
Caddo, La.	Port Arthur, Texas	25
Cottonvalley, La.	Beaumont, Texas	30
Crichton, La.	Port Arthur, Texas	25
De Soto, La.	Anchorage, La.	20
De Soto, La.	Lucas, Texas	25
De Soto, La.	Port Arthur, Texas	25
Edgerly, La.	Lucas, Texas	20
Edgerly, La.	Port Arthur, Texas	20
Flora Station, La.	Anchorage, La.	20
Haynesville, La.	Anchorage, La.	20
Haynesville, La.	Beaumont, Texas	30
Haynesville, La.	Port Arthur, Texas	30
Homer, La.	Lucas, Texas	40
Homer, La.	Port Arthur, Texas	40
Lewis, La.	Anchorage, La.	20
Pine Island, La.	Beaumont, Texas	20
Shreveport, La.	Port Arthur, Texas	25
Vinton, La.	Lucas, Texas	40
Vinton, La.	Port Arthur, Texas	15
Weller, La.	Anchorage, Texas	20
Addington, Okla.	Alvord, Texas	7½
Addington, Okla.	Beaumont, Texas	30
Addington, Okla.	Corsicana, Texas	17½
Addington, Okla.	Fort Worth, Texas	12½
Addington, Okla.	Ringgold, Texas	3
Artesian, Okla.	Beaumont, Texas	37½
Artesian, Okla.	Corsicana, Texas	27½
Artesian, Okla.	Dayton, Texas	37½
Artesian, Okla.	Nederlands, Texas	40
Artesian, Okla.	Port Arthur, Texas	40
Artesian, Okla.	West Dallas, Texas	22½
Bald Hill, Okla.	Beaumont, Texas	37½
Bald Hill, Okla.	Corsicana, Texas	27½
Bald Hill, Okla.	Dayton, Texas	37½
Bald Hill, Okla.	Fort Worth, Texas	27½
Bald Hill, Okla.	Lucas, Texas	40
Bald Hill, Okla.	Nederlands, Texas	40
Bald Hill, Okla.	Port Arthur, Texas	40
Bald Hill, Okla.	West Dallas, Texas	22½
Bartlesville, Okla.	Bridgeport, Ill.	48
Bartlesville, Okla.	Lawrenceville, Ill.	48
Bartlesville, Okla.	Lockhart, Ill.	46
Bartlesville, Okla.	Neodesha, Kan.	15
Bartlesville, Okla.	Stoy, Ill.	48
Bartlesville, Okla.	Sugar Creek, Mo.	30¾
Bartlesville, Okla.	Whiting, Ind.	46
Bartlesville, Okla.	Wood River, Ill.	37¼
Beaver, Okla.	Addington, Okla.	7½
Beaver, Okla.	Alvord, Texas	15
Beaver, Okla.	Beaumont, Texas	35
Beaver, Okla.	Corsicana, Texas	25
Beaver, Okla.	Fort Worth, Texas	20
Beaver, Okla.	Ringgold, Texas	10
Beaver, Okla.	Terral, Okla.	10
Beggs, Okla.	Beaumont, Texas	37½
Beggs, Okla.	Corsicana, Texas	27½
Beggs, Okla.	Dayton, Texas	37½
Beggs, Okla.	Fort Worth, Texas	27½
Beggs, Okla.	Lucas, Texas	40
Beggs, Okla.	Nederlands, Texas	40
Beggs, Okla.	Port Arthur, Texas	40
Beggs, Okla.	West Dallas, Texas	22½
Bristow, Okla.	Beaumont, Texas	37½
Bristow, Okla.	Corsicana, Texas	27½
Bristow, Okla.	Dayton, Texas	37½
Bristow, Okla.	Fort Worth, Texas	27½
Bristow, Okla.	Lucas, Texas	40
Bristow, Okla.	Nederlands, Texas	40
Bristow, Okla.	Port Arthur, Texas	40
Bristow, Okla.	West Dallas, Texas	22½
Burbank, Okla.	Beaumont, Texas	40
Burbank, Okla.	Coffeyville, Kan.	15
Burbank, Okla.	Corsicana, Texas	27½
Burbank, Okla.	Dayton, Texas	42½
Burbank, Okla.	Fort Worth, Texas	22½
Burbank, Okla.	Lucas, Texas	40
Burbank, Okla.	Nederlands, Texas	45
Burbank, Okla.	Port Arthur, Texas	40
Burbank, Okla.	West Dallas, Texas	27½
Captain Creek, Okla.	Bridgeport, Ill.	48
Captain Creek, Okla.	Lawrenceville, Ill.	48
Captain Creek, Okla.	Lockhart, Ill.	46

PIPE LINE TARIFF

FROM	TO	Rate
Captain Creek, Okla.	Neodesha, Kan.	15
Captain Creek, Okla.	Stoy, Ill.	48
Captain Creek, Okla.	Sugar Creek, Mo.	30¾
Captain Creek, Okla.	Whiting, Ind.	46
Captain Creek, Okla.	Wood River, Ill.	37¼
Carson, Okla.	Beaumont, Texas	37½
Carson, Okla.	Corsicana, Texas	27½
Carson, Okla.	Dayton, Texas	37½
Carson, Okla.	Nederlands, Texas	40
Carson, Okla.	Port Arthur, Texas	40
Carson, Okla.	West Dallas, Texas	22½
Carter County, Okla.	Gainesville, Texas	14
Casey, Okla.	Fort Worth, Texas	27½
Casey, Okla.	Lucas, Texas	40
Casey, Okla.	Port Arthur, Texas	40
Chandler, Okla.	Beaumont, Texas	37½
Chandler, Okla.	Corsicana, Texas	27½
Chandler, Okla.	Dayton, Texas	37½
Chandler, Okla.	Nederlands, Texas	40
Chandler, Okla.	Port Arthur, Texas	40
Chandler, Okla.	West Dallas, Texas	22½
Cherokee, Okla.	Bridgeport, Ill.	48
Cherokee, Okla.	Lawrenceville, Ill.	48
Cherokee, Okla.	Lockhart, Ill.	46
Cherokee, Okla.	Neodesha, Kan.	15
Cherokee, Okla.	Stoy, Ill.	48
Cherokee, Okla.	Sugar Creek, Mo.	30¾
Cherokee, Okla.	Whiting, Ind.	46
Cherokee, Okla.	Wood River, Ill.	37¼
Cleveland, Okla.	Fort Worth, Texas	27½
Cleveland, Okla.	Lucas, Texas	40
Cleveland, Okla.	Port Arthur, Texas	40
Cooper, Okla.	Addington, Okla.	7½
Cooper, Okla.	Alvord, Texas	15
Cooper, Okla.	Beaumont, Texas	35
Cooper, Okla.	Corsicana, Texas	25
Cooper, Okla.	Fort Worth, Texas	20
Cooper, Okla.	Ringgold, Texas	10
Cooper, Okla.	Terral, Okla.	10
Council Hill, Okla.	Anchorage, La.	37½
Council Hill, Okla.	Wood River, Ill.	37¼
Creek, Okla.	Bridgeport, Ill.	48
Creek, Okla.	Lawrenceville, Ill.	48
Creek, Okla.	Lockhart, Ill.	46
Creek, Okla.	Neodesha, Kan.	15
Creek, Okla.	Stoy, Ill.	48
Creek, Okla.	Sugar Creek, Mo.	30¾
Creek, Okla.	Whiting, Ind.	46
Creek, Okla.	Wood River, Ill.	37¼
Cromwell, Okla.	Anchorage, La.	37½
Cromwell, Okla.	Baytown, Texas	40
Cromwell, Okla.	Beaumont, Texas	37½
Cromwell, Okla.	Corsicana, Texas	27½
Cromwell, Okla.	Dayton, Texas	37½
Cromwell, Okla.	Fort Worth, Texas	27½
Cromwell, Okla.	Lucas, Texas	40
Cromwell, Okla.	Nederlands, Texas	40
Cromwell, Okla.	Fort Arthur, Texas	40
Cromwell, Okla.	Texas City, Texas	40
Cromwell, Okla.	West Dallas, Texas	22½
Cushing, Okla.	Beaumont, Texas	37½
Cushing, Okla.	Corsicana, Texas	27½
Cushing, Okla.	Dayton, Texas	37½
Cushing, Okla.	Fort Worth, Texas	27½
Cushing, Okla.	Lucas, Texas	40
Cushing, Okla.	Nederlands, Texas	40
Cushing, Okla.	Port Arthur, Texas	40
Cushing, Okla.	West Dallas, Texas	22½
Davenport, Okla.	Beaumont, Texas	37½
Davenport, Okla.	Corsicana, Texas	27½
Davenport, Okla.	Dayton, Texas	37½
Davenport, Okla.	Fort Worth, Texas	27½
Davenport, Okla.	Lucas, Texas	40
Davenport, Okla.	Nederlands, Texas	40
Davenport, Okla.	Port Arthur, Texas	40
Davenport, Okla.	West Dalls, Texas	22½
Deaver, Okla.	Fort Worth, Texas	27½
Deaver, Okla.	Lucas, Texas	40
Deaver, Okla.	Port Arthur, Texas	40
Donoya, Okla.	Ancorage, La.	43¼
Depew, Okla.	Beaumont, Texas	37½
Depew, Okla.	Corsicana, Texas	27½
Depew, Okla.	Dayton, Texas	37½
Depew, Okla.	Fort Worth, Texas	27½
Depew, Okla.	Lucas, Texas	40
Depew, Okla.	Nederlands, Texas	40
Depew, Okla.	Port Arthur, Texas	40
Depew, Okla.	West Dallas, Texas	22½
Drumright, Okla.	Anchorage, La.	37½
Drumright, Okla.	Baytown, Texas	40
Drumright, Okla.	Coffeyville, Kan.	15
Drumright, Okla.	Texas City, Texas	40
Earlsboro, Okla.	Beaumont, Texas	37½
Earlsboro, Okla.	Corsicana, Texas	27½
Earlsboro, Okla.	Dayton, Texas	37½
Earlsboro, Okla.	Nederlands, Texas	40
Earlsboro, Okla.	Port Arthur, Texas	40
Earlsboro, Okla.	West Dallas, Texas	22½
Francis, Okla.	Baytown, Texas	40
Francis, Okla.	Texas City, Texas	40
Glenn, Okla.	Beaumont, Texas	37½
Glenn, Okla.	Corsicana, Texas	27½
Glenn, Okla.	Dayton, Texas	37½
Glenn, Okla.	Nenerlands, Texas	40
Glenn, Okla.	Port Arthur, Texas	40
Glenn, Okla.	West Dallas, Texas	22½
Glenpool, Okla.	Anchorage, La.	37½
Glenpool, Okla.	Fort Worth, Texas	27½
Glenpool, Okla.	Lucas, Texas	40
Glenpool, Okla.	Port Arthur, Texas	40
Grayson, Okla.	Beaumont, Texas	37½
Grayson, Okla.	Corsicana, Texas	27½
Grayson, Okla.	Dayton, Texas	37½
Grayson, Okla.	Nederlands, Texas	40
Grayson, Okla.	Port Arthur, Texas	40
Grayson, Okla.	West Dallas, Texas	22½
Hamilton, Okla.	Beaumont, Texas	37½
Hamilton, Okla.	Corsicana, Texas	27½
Hamilton, Okla.	Dayton, Texas	37½
Hamilton, Okla.	Nederlands, Texas	40
Hamilton, Okla.	Port Arthur, Texas	40
Hamilton, Okla.	West Dallas, Texas	22½
Healdton, Okla.	Addington, Okla.	7½
Healdton, Okla.	Alvord, Texas	15
Healdton, Okla.	Baytown, Texas	...
Healdton, Okla.	Beaumont, Texas	35
Healdton, Okla.	Corsicana, Texas	25
Healdton, Okla.	Dayton, Texas	37½
Healdton, Okla.	Fort Worth, Texas	20
Healdton, Okla.	Nederlands, Texas	40
Healdton, Okla.	Port Arthur, Texas	40
Healdton, Okla.	Ringgold, Texas	10
Healdton, Okla.	Terral, Okla.	10
Healdton, Okla.	West Dallas, Texas	22½
Henryetta, Okla.	Beaumont, Texas	37½
Henryetta, Okla.	Corsicana, Texas	27½
Henryetta, Okla.	Dayton, Texas	37½
Henryetta, Okla.	Nederlands, Texas	40
Henryetta, Okla.	Port Arthur, Texas	40
Henryetta, Okla.	West Dallas, Texas	22½
Hewitt, Okla.	Anchorage, La.	37½
Hewitt, Okla.	Baytown, Texas	40
Hewitt, Okla.	Beaumont, Texas	37½
Hewitt, Okla.	Corsicana, Texas	27½
Hewitt, Okla.	Dayton, Texas	37½
Hewitt, Okla.	Nederlands, Texas	40
Hewitt, Okla.	Port Arthur, Texas	40
Hewitt, Okla.	West Dallas, Texas	22½
Hominy, Okla.	Beaumont, Texas	37½
Hominy, Okla.	Corsicana, Texas	27½
Hominy, Okla.	Coffeyville, Kan.	15
Hominy, Okla.	Dayton, Texas	37½
Hominy, Okla.	Fort Worth, Texas	27½
Hominy, Okla.	Lucas, Texas	40
Hominy, Okla.	Nederlands, Texas	40
Hominy, Okla.	Port Arthur, Texas	40
Hominy, Okla.	West Dallas, Texas	22½
Indian, Okla.	Bridgeport, Texas	48
Indian, Okla.	Lawrenceville, Ill.	48
Indian, Okla.	Lockhart, Ill.	46
Indian, Okla.	Neodesha, Kan.	15
Indian, Okla.	Sugar Creek, Mo.	30¾
Indian, Okla.	Whiting, Ind.	46
Indian, Okla.	Wood River, Ill.	37¼
Kelleyville, Okla.	Beaumont, Texas	37½
Kelleyville, Okla.	Corsicana, Texas	27½
Kelleyville, Okla.	Dayton, Texas	37½

PIPE LINE TARIFF

FROM	TO	Rate
Kelleyville, Okla.	Nederlands, Texas	40
Kelleyville, Okla.	Port Arthur, Texas	40
Kelleyville, Okla.	West Dallas, Texas	22½
Kingwood, Okla.	Blanken, Okla.	10
Kingwood, Okla.	Okmulgee, Okla.	10
Kophey, Okla.	Beaumont, Texas	37½
Kophey, Okla.	Corsicana, Texas	27½
Kophey, Okla.	Dayton, Texas	37½
Kophey, Okla.	Nederlands, Texas	40
Kophey, Okla.	Port Arthur, Texas	40
Kophey, Okla.	West Dallas, Texas	22½
Lima, Okla.	Blanken, Texas	10
Lima, Okla.	Okmulgee, Okla.	15
Lima, Okla.	Ponca City, Okla.	15
Lima, Okla.	Spencer, Okla.	15
Little River, Okla.	Beaumont, Texas	37½
Little River, Okla.	Corsicana, Texas	27½
Little River, Okla.	Dayton, Texas	37½
Little River, Okla.	Nederlands, Texas	40
Little River, Okla.	Port Arthur, Texas	40
Little River, Okla.	West Dallas, Texas	22½
Lost City, Okla.	Beaumont, Texas	37½
Lost City, Okla.	Corsicana, Texas	27½
Lost City, Okla.	Dayton, Texas	37½
Lost City, Okla.	Nederlands, Texas	40
Lost City, Okla.	Port Arthur, Texas	40
Lost City, Okla.	West Dallas, Texas	22½
Lyons, Okla.	Beaumont, Texas	37½
Lyons, Okla.	Corsicana, Texas	27½
Lyons, Okla.	Dayton, Texas	37½
Lyons, Okla.	Nederlands, Texas	40
Lyons, Okla.	Port Arthur, Texas	40
Lyons, Okla.	West Dallas, Texas	22½
Madill, Okla.	Ancorage, La.	37½
Miami, Okla.	Bridgeport, Ill.	48
Miami, Okla.	Lawrenceville, Ill.	48
Miami, Okla.	Lockhart, Ill.	46
Miami, Okla.	Neodesha, Kan.	15
Miami, Okla.	Stoy, Ill.	48
Miami, Okla.	Sugar Creek, Mo.	30¾
Miami, Okla.	Whiting, Ind.	46
Miami, Okla.	Wood River, Ill.	37¼
Morris, Okla.	Beaumont, Texas	37½
Morris, Okla.	Corsicana, Texas	27½
Morris, Okla.	Dayton, Texas	37½
Morris, Okla.	Fort Worth, Texas	27½
Morris, Okla.	Lucas, Texas	40
Morris, Okla.	Nederlands, Texas	40
Morris, Okla.	Port Arthur, Texas	40
Morris, Okla.	West Dallas, Texas	22½
Morrison, Okla.	Beaumont, Texas	40
Morrison, Okla.	Corsicana, Texas	27½
Morrison, Okla.	Fort Worth, Texas	22½
Newby, Okla.	Beaumont, Texas	37½
Newby, Okla.	Corsicana, Texas	27½
Newby, Okla.	Dayton, Texas	37½
Newby, Okla.	Nederlands, Texas	40
Newby, Okla.	Port Arthur, Texas	40
Newby, Okla.	West Dallas, Texas	22½
North Glenpool, Okla.	Fort Worth, Texas	27½
North Glenpool, Okla.	Lucas, Texas	40
North Glenpool, Okla.	Port Arthur, Texas	40
Okemah, Okla.	Beaumont, Texas	37½
Okemah, Okla.	Corsicana, Texas	27½
Okemah, Okla.	Dayton, Texas	37½
Okemah, Okla.	Fort Worth, Texas	27½
Okemah, Okla.	Lucas, Texas	40
Okemah, Okla.	Nederlands, Texas	40
Okemah, Okla.	Port Arthur, Texas	40
Okemah, Okla.	West Dallas, Texas	22½
Okmulgee, Okla.	Beaumont, Texas	37½
Okmulgee, Okla.	Corsicana, Texas	27½
Okmulgee, Okla.	Dayton, Texas	37½
Okmulgee, Okla.	Nederlands, Texas	40
Okmulgee, Okla.	Port Arthur, Texas	40
Okmulgee, Okla.	West Dallas, Texas	22½
Pauls Valley, Okla.	Bridgeport, Illinois	48
Pauls Valley, Okla.	Lawrenceville, Illinois	48
Pauls Valley, Okla.	Lockhart, Illinois	46
Pauls Valley, Okla.	Neodesha, Kansas	15
Pauls Valley, Okla.	Stoy, Illinois	48
Pauls Valley, Okla.	Sugar Creek, Missouri	30¾
Pauls Valley, Okla.	Whiting, Indiana	46
Pauls Valley, Okla.	Wood River, Illinois	37¼
Pearsonia, Okla.	Fort Worth, Texas	27½
Pearsonia, Okla.	Lucas, Texas	40
Pearsonia, Okla.	Port Arthur, Texas	40
Quay, Okla.	Beaumont, Texas	37½
Quay, Okla.	Corsicana, Texas	27½
Quay, Okla.	Dayton, Texas	37½
Quay, Okla.	Nederlands, Texas	40
Quay, Okla.	Port Arthur, Texas	40
Quay, Okla.	West Dallas, Texas	22½
Red Fork, Okla.	Beaumont, Texas	37½
Red Fork, Okla.	Corsicana, Texas	27½
Red Fork, Okla.	Dayton, Texas	37½
Red Fork, Okla.	Nederlands, Texas	40
Red Fork, Okla.	Port Arthur, Texas	40
Red Fork, Okla.	West Dallas, Texas	22½
Ralston Station, Okla.	Anchorage, Louisiana	42
Ringling, Okla.	Anchorage, Louisiana	50
Ringling, Okla.	Bridgeport, Ill.	48
Ringling, Okla.	Lawrenceville, Ill.	48
Ringling, Okla.	Lockhart, Ill.	46
Ringling, Okla.	Neodesha, Kansas	15
Ringling, Okla.	Stoy, Ill.	48
Ringling, Okla.	Sugar Creek, Mo.	30¾
Ringling, Okla.	Whiting, Indiana	46
Ringling, Okla.	Wood River, Ill.	37¼
Seminole, Okla.	Beaumont, Texas	37½
Seminole, Okla.	Corsicana, Texas	27½
Seminole, Okla.	Dayton, Texas	37½
Seminole, Okla.	Fort Worth, Texas	27½
Seminole, Okla.	Lucas, Texas	40
Seminole, Okla.	Nederlands, Texas	40
Seminole, Okla.	Port Arthur, Texas	40
Seminole, Okla.	West Dallas, Texas	22½
Slick, Okla.	Fort Worth, Texas	27½
Slick, Okla.	Lucas, Texas	40
Slick, Okla.	Port Arthur, Texas	40
Tiger Falls, Okla.	Beaumont, Texas	37½
Tiger Falls, Okla.	Corsicana, Texas	27½
Tiger Falls, Okla.	Dayton, Texas	37½
Tiger Falls, Okla.	Fort Worth, Texas	27½
Tiger Falls, Okla.	Lucas, Texas	40
Tiger Falls, Okla.	Nederlands, Texas	40
Tiger Falls, Okla.	Port Arthur, Texas	40
Tiger Falls, Okla.	West Dallas, Texas	22½
Temple, Oklahoma	Bridgeport, Ill.	48
Temple, Oklahoma	Lawrenceville, Ill.	48
Temple, Oklahoma	Lockhart, Ill.	46
Temple, Oklahoma	Neodesha, Kansas	15
Temple, Oklahoma	Stoy, Ill.	48
Temple, Oklahoma	Sugar Creek, Mo.	30¾
Temple, Oklahoma	Whiting, Indiana	46
Temple, Oklahoma	Wood River, Ill.	37¼
Tonkawa, Okla.	Beaumont, Texas	47½
Tonkawa, Okla.	Corsicana, Texas	37½
Tonkawa, Okla.	Dayton, Texas	47½
Tonkawa, Okla.	Fort Worth, Texas	27½
Tonkawa, Okla.	Lucas, Texas	40
Tonkawa, Okla.	Nederlands, Texas	50
Tonkawa, Okla.	Port Arthur, Texas	40
Tonkawa, Okla.	West Dallas, Texas	32½
West Tulsa, Okla.	Beaumont, Texas	37½
West Tulsa, Okla.	Corsicana, Texas	27½
West Tulsa, Okla.	Dayton, Texas	37½
West Tulsa, Okla.	Nederlands, Texas	40
West Tulsa, Okla.	Port Arthur, Texas	40
West Tulsa, Okla.	West Dallas, Texas	22½
Wild Horse, Okla.	Beaumont, Texas	37½
Wild Horse, Okla.	Corsicana, Texas	27½
Wild Horse, Okla.	Dayton, Texas	37½
Wild Horse, Okla.	Fort Worth, Texas	27½
Wild Horse, Okla.	Lucas, Texas	40
Wild Horse, Okla.	Nederlands, Texas	40
Wild Horse, Okla.	Port Arthur, Texas	40
Wild Horse, Okla.	West Dallas, Texas	22½
Winchell, Okla.	Fort Worth, Texas	27½
Winchell, Okla.	Lucas, Texas	40
Winchell, Okla.	Port Arthur, Texas	40
Wynona, Okla.	Fort Worth, Texas	27½
Wynona, Okla.	Lucas, Texas	40
Wynona, Okla.	Port Arthur, Texas	40
Yale, Okla.	Fort Worth, Texas	27½
Yale, Okla.	Lucas, Texas	40

PIPE LINE TARIFF

FROM	TO	Rate
Yale, Okla.	Port Arthur, Texas	40
Youngstown, Okla.	Beaumont, Texas	37½
Youngstown, Okla.	Corsicana, Texas	27½
Youngstown, Okla.	Dayton, Texas	37½
Youngstown, Okla.	Nederlands, Texas	40
Youngstown, Okla.	Port Arthur, Texas	40
Youngstown, Okla.	West Dallas, Texas	22½
Albany, Texas	Corsicana, Texas	45
Albany, Texas	Fort Worth, Texas	37½
Albany, Texas	Humble, Texas	52½
Albany, Texas	Port Arthur, Texas	57½
Albany, Texas	Ranger, Texas	17½
Albany, Texas	West Dallas, Texas	40
Alvord, Texas	Corsicana, Texas	10
Alvord, Texas	Fort Worth, Texas	5
Batson, Texas	Gladys, Texas	12½
Batson, Texas	Olean, Texas	12½
Batson, Texas	Sabine Pass, Texas	15
Batson, Texas	Sour Lake, Texas	7½
Batson, Texas	Sun, Texas	12½
Benson, Texas	Electra, Texas	20
Benson, Texas	Iowa Park, Texas	20
Benson, Texas	Olney, Texas	12½
Benson, Texas	Swastika, Texas	12½
Benson, Texas	Wichita Falls, Texas	20
Beaumont, Texas	Baytown, Texas	17½
Big Creek, Texas	Olean, Texas	27½
Big Creek, Texas	Lynchburg, Texas	20
Big Creek, Texas	Steber, Texas	12½
Blue Ridge, Texas	Olean, Texas	22½
Blue Ridge, Texas	Lynchburg, Texas	15
Breckenridge, Texas	Corsicana, Texas	42½
Breckenridge, Texas	Fort Worth, Texas	35
Breckenridge, Texas	Humble, Texas	50
Breckenridge, Texas	Olean, Texas	42½
Breckenridge, Texas	Port Arthur, Texas	55
Breckenridge, Texas	Ranger, Texas	15
Breckenridge, Texas	Sour Lake, Texas	37½
Breckenridge, Texas	West Dallas, Texas	37½
Boling, Texas	Houston, Texas	30
Boling, Texas	Humble, Texas	35
Boling, Texas	Port Arthur, Texas	40
Boling, Texas	West Columbia, Texas	17½
Bruni, Texas	Ingleside, Texas	20
Bryant, Texas	Kings Hill, Texas	15
Burkburnett, Texas	Alvord, Texas	7½
Burkburnett, Texas	Beaumont, Texas	32½
Burkburnett, Texas	Corsicana, Texas	20
Burkburnett, Texas	Electra, Texas	12½
Burkburnett, Texas	Fort Worth, Texas	15
Burkburnett, Texas	Humble, Texas	40
Burkburnett, Texas	Olean, Texas	42½
Burkburnett, Texas	Port Arthur, Texas	45
Burkburnett, Texas	Ranger, Texas	..
Burkburnett, Texas	Sardis, Texas	20
Burkburnett, Texas	West Dallas, Texas	27½
Burkburnett, Texas	Wichita Falls, Texas	12½
Bunger, Texas	Corsicana, Texas	45
Bunger, Texas	Fort Worth, Texas	37½
Bunger, Texas	Humble, Texas	52½
Bunger, Texas	Port Arthur, Texas	57½
Bunger, Texas	Ranger, Texas	17½
Bunger, Texas	West Dallas, Texas	40
Burnett, Texas	Baytown, Texas	50
Burnett, Texas	Chilton, Texas	25
Burnett, Texas	Texas City, Texas	50
Burnett, Texas	Webster, Texas	45
Chilton, Texas	Baytown, Texas	25
Chilton, Texas	Texas City, Texas	25
Chilton, Texas	Webster, Texas	20
Colonels Station, Texas	Smiths Bluff, Texas	20
Comyn, Texas	Baytown, Texas	40
Comyn, Texas	Chilton, Texas	15
Comyn, Texas	Texas City, Texas	40
Comyn, Texas	Webster, Texas	35
Corsicana, Texas	Beaumont, Texas	20
Cow Bayon, Texas	Olean, Texas	15
Crane, Texas	Atreco, Texas	40
Crane, Texas	Beaumont, Texas	40
Crane, Texas	Corsicana, Texas	27½
Crane, Texas	Magpetco, Texas	40
Currie, Texas	Humble, Texas	30
Currie, Texas	Mexia, Texas	12½

FROM	TO	Rate
Currie, Texas	Port Arthur, Texas	25
Dayton, Texas	Baytown, Texas	7½
Dayton, Texas	Gladys, Texas	16
Dayton, Texas	Sabine Pass, Texas	18
Dayton, Texas	Sun, Texas	16
De Leon, Texas	Beaumont, Texas	32½
De Leon, Texas	Corsicana, Texas	20
Del Rio, Texas	Lytle, Texas	16
Electra, Texas	Beaumont, Texas	32½
Electra, Texas	Bridgeport, Texas	22½
Electra, Texas	Burkburnett, Texas	5
Electra, Texas	Corsicana, Texas	20
Electra, Texas	Fort Worth, Texas	15
Electra, Texas	Humble, Texas	40
Electra, Texas	Iowa Park, Texas	12½
Electra, Texas	Olean, Texas	47½
Electra, Texas	Port Arthur, Texas	45
Electra, Texas	Sardis, Texas	20
Electra, Texas	West Dallas, Texas	27½
Electra, Texas	Wichita Falls, Texas	12½
Fort Worth, Texas	Beaumont, Texas	22½
Fort Worth, Texas	Corsicana, Texas	5
Faulkner, Texas	Beaumont, Texas	20
Gladys, Texas	Sabine Pass, Texas	7½
Gladys, Texas	Sun, Texas	2½
Goose Creek, Texas	Baytown, Texas	5
Goose Creek, Texas	Houston, Texas	7½
Goose Creek, Texas	Lynchburg, Texas	5
Goose Creek, Texas	Olean, Texas	17½
Goose Creek, Texas	Sour Lake, Texas	10
Groesbeck, Texas	Baytown, Texas	25
Groesbeck, Texas	Beaumont, Texas	20
Groesbeck, Texas	Texas City, Texas	25
Groesbeck, Texas	Webster, Texas	20
Hinsley Station, Texas	Bridgeport, Ill.	48
Hinsley Station, Texas	Lawrenceville, Ill.	48
Hinsley Station, Texas	Lockhart, Ill.	46
Hinsley Station, Texas	Stoy, Ill.	48
Hinsley Station, Texas	Whiting, Indiana	46
Hinsley Station, Texas	Smiths Bluff, Texas	42½
Holliday, Texas	Bridgeport, Texas	27½
Holliday, Texas	Corsicana, Texas	37½
Holliday, Texas	Electra, Texas	12½
Holliday, Texas	Fort Worth, Texas	30
Holliday, Texas	Humble, Texas	45
Holliday, Texas	Iowa Park, Texas	17½
Holliday, Texas	Port Arthur, Texas	50
Holliday, Texas	West Dallas, Texas	32½
Holliday, Texas	Wichita Falls, Texas	17½
Hull, Texas	Baytown, Texas	15
Hull, Texas	Dayton, Texas	7½
Hull, Texas	Gladys, Texas	12½
Hull, Texas	Olean, Texas	12½
Hull, Texas	Port Arthur, Texas	20
Hull, Texas	Sabine Pass, Texas	15
Hull, Texas	Sour Lake, Texas	7½
Hull, Texas	Sun, Texas	12½
Hull, Texas	Texas City, Texas	27½
Hull, Texas	Webster, Texas	22½
Humble, Texas	Gladys, Texas	17½
Humble, Texas	Port Arthur, Texas	20
Humble, Texas	Sabine Pass, Texas	20
Humble, Texas	Sun, Texas	17½
Hurdle, Texas	McCamey, Texas	20
Iatan, Texas	Atreco, Texas	40
Iatan, Texas	Beaumont, Texas	40
Iatan, Texas	Magpetco, Texas	40
Kemper, Texas	Baytown, Texas	40
Kemper, Texas	Chilton, Texas	15
Kemper, Texas	Texas City, Texas	40
Kemper, Texas	Webster, Texas	35
Kings Mill, Texas	Anchorage, Louisiana	50
Lucas, Texas	Olean, Texas	5
Luling, Texas	Beaumont, Texas	25
McCamey, Texas	Baytown, Texas	45
McCamey, Texas	Chilton, Texas	20
McCamey, Texas	Ingleside, Texas	37½
McCamey, Texas	Lytle, Texas	22½
McCamey, Texas	Texas City, Texas	45
McCamey, Texas	Webster, Texas	40
Markham, Texas	Bay City, Texas	12½
Mexia, Texas	Humble, Texas	30
Mexia, Texas	Olean, Texas	27½

PIPE LINE TARIFF

FROM	TO	Rate
Mexia, Texas	Port Arthur, Texas	35
Midland, Texas	Olean, Texas	55
Midland, Texas	Corsicana, Texas	27½
Mirando, Texas	Beaumont, Texas	45
Mirando, Texas	Luling, Texas	20
Moran, Texas	Corsicana, Texas	45
Moran, Texas	Fort Worth, Texas	37½
Moran, Texas	Humble, Texas	52½
Moran, Texas	Port Arthur, Texas	57½
Moran, Texas	Ranger, Texas	17½
Moran, Texas	West Dallas, Texas	40
Olden, Texas	Beaumont, Texas	32½
Olden, Texas	Corsicana, Texas	20
Olden, Texas	De Leon, Texas	5
Olney, Texas	Bridgeport, Texas	30
Olney, Texas	Corsicana, Texas	40
Olney, Texas	Electra, Texas	20
Olney, Texas	Fort Worth, Texas	32½
Olney, Texas	Humble, Texas	47½
Olney, Texas	Iowa Park, Texas	12½
Olney, Texas	Port Arthur, Texas	52½
Olney, Texas	Swastika, Texas	12½
Olney, Texas	West Dallas, Texas	35
Olney, Texas	Wichita Falls, Texas	20
Orange, Texas	Neches Terminal, Texas	7½
Orange, Texas	Port Arthur, Texas	15
Panhandle, Texas	Fort Worth, Texas	35
Panhandle, Texas	Olean, Texas	55
Pecos, Texas	Baytown, Texas	45
Pecos, Texas	Chilton, Texas	20
Pecos, Texas	Ingleside, Texas	37½
Pecos, Texas	Lytle, Texas	22½
Pecos, Texas	Texas City, Texas	45
Pecos, Texas	Webster, Texas	40
Petrolia, Texas	Bridgeport, Texas	22½
Petrolia, Texas	Corsicana, Texas	32½
Petrolia, Texas	Fort Worth, Texas	25
Petrolia, Texas	Humble, Texas	40
Petrolia, Texas	Port Arthur, Texas	45
Petrolia, Texas	West Dallas, Texas	27½
Pierce Junction, Texas	Baytown, Texas	15
Pierce Junction, Texas	Lynchburg, Texas	15
Pierce Junction, Texas	Olean, Texas	22½
Pierce Junction, Texas	Texas City, Texas	15
Pierce Junction, Texas	Webster, Texas	10
Pioneer, Texas	Corsicana, Texas	45
Pioneer, Texas	Fort Worth, Texas	37½
Pioneer, Texas	Humble, Texas	52½
Pioneer, Texas	Port Arthur, Texas	57½
Pioneer, Texas	Ranger, Texas	17½
Pioneer, Texas	West Dallas, Texas	40
Powell, Texas	Corsicana, Texas	12½
Powell, Texas	Humble, Texas	32½
Powell, Texas	Olean, Texas	27½
Powell, Texas	Port Arthur, Texas	37½
Predo, Texas	Electra, Texas	25
Predo, Texas	Iowa Park, Texas	25
Predo, Texas	Olney, Texas	17½
Predo, Texas	Swastika, Texas	17½
Predo, Texas	Wichita Falls, Texas	25
Putnam, Texas	Corsicana, Texas	45
Putnam, Texas	Fort Worth, Texas	37½
Putnam, Texas	Humble, Texas	52½
Putnam, Texas	Port Arthur, Texas	57½
Putnam, Texas	Ranger, Texas	17½
Putnam, Texas	West Dallas, Texas	40
Ranger, Texas	Corsicana, Texas	40
Ranger, Texas	Fort Worth, Texas	20
Ranger, Texas	Humble, Texas	47½
Ranger, Texas	Olean, Texas	40
Ranger, Texas	Port Arthur, Texas	52½
Ranger, Texas	Sour Lake, Texas	35
Ranger, Texas	West Dallas, Texas	35
Red Station, Texas	Bridgeport, Ill.	48
Red Station, Texas	Lawrenceville, Ill.	48
Red Station, Texas	Lockhart, Ill.	46
Red Station, Texas	Neodesha, Kansas	15
Red Station, Texas	Stoy, Ill.	48
Red Station, Texas	Sugar Creek, Mo.	30¾
Red Station, Texas	Whiting, Indiana	46
Red Station, Texas	Wood River, Ill.	37½
Ringgold, Texas	Alvord, Texas	5
Ringgold, Texas	Beaumont, Texas	27½
Ringgold, Texas	Corsicana, Texas	15
Ringgold, Texas	Fort Worth, Texas	10
Rogers, Station, Texas	Bridgeport, Ill.	48
Rogers, Station, Texas	Lawrenceville, Ill.	48
Rogers, Station, Texas	Lockhart, Ill.	46
Rogers, Station, Texas	Neodesha, Kansas	15
Rogers, Station, Texas	Smiths Bluff, Texas	42½
Rogers, Station, Texas	Stoy, Ill.	48
Rogers, Station, Texas	Sugar Creek, Mo.	30¾
Rogers, Station, Texas	Whiting, Indiana	46
Rogers, Station, Texas	Wood River, Ill.	37¼
Saratoga, Texas	Gladys, Texas	12½
Saratoga, Texas	Olean, Texas	10
Saratoga, Texas	Sabine Pass, Texas	15
Saratoga, Texas	Sour Lake, Texas	5
Saratoga, Texas	Sun, Texas	12½
Sour Lake, Texas	Gladys, Texas	7½
Sour Lake, Texas	Olean, Texas	7½
Sour Lake, Texas	Port Arthur, Texas	15
Sour Lake, Texas	Sabine Pass, Texas	10
Sour Lake, Texas	Sun, Texas	7½
South Bend, Texas	Corsicana, Texas	45
South Bend, Texas	Fort Worth, Texas	37½
South Bend, Texas	Humble, Texas	52½
South Bend, Texas	Port Arthur, Texas	57½
South Bend, Texas	Ranger, Texas	17½
South Bend, Texas	West Dallas, Texas	40
South Liberty, Texas	Dayton, Texas	7½
South Liberty, Texas	Gladys, Texas	16
South Liberty, Texas	Olean, Texas	12½
South Liberty, Texas	Port Arthur, Texas	20
South Liberty, Texas	Sabine Pass, Texas	18
South Liberty, Texas	Sour Lake, Texas	7½
South Liberty, Texas	Sun, Texas	16
Spindletop, Texas	Gladys, Texas	2½
Spindletop, Texas	Port Arthur, Texas	15
Spindletop, Texas	Sabine Pass, Texas	7½
Spindletop, Texas	Sun, Texas	2½
Stephens Station, Texas	Beaumont, Texas	32½
Stephens Station, Texas	Corsicana, Texas	20
Stephens Station, Texas	De Leon, Texas	5
Sugarland, Texas	Baytown, Texas	20
Sugarland, Texas	Texas City, Texas	20
Sugarland, Texas	Webster, Texas	15
Sun, Texas	Sabine Pass, Texas	7½
Swastika, Texas	Electra, Texas	20
Swastika, Texas	Iowa Park, Texas	20
Swastika, Texas	Wichita Falls, Texas	20
Terry, Texas	Sabine Pass, Texas	12
Tiffin Station, Texas	Bridgeport, Ill.	48
Tiffin Station, Texas	Lawrenceville, Ill.	40
Tiffin Station, Texas	Lockhart, Ill.	46
Tiffin Station, Texas	Neodesha, Kansas	15
Tiffin Station, Texas	Smiths Bluff, Texas	42½
Tiffin Station, Texas	Stoy, Ill.	48
Terry Station, Texas	Sugar Creek, Mo.	30¾
Terry Station, Texas	Whiting, Indiana	46
Terry Station, Texas	Wood River, Ill.	37¼
Vernon, Texas	Bridgeport, Texas	27½
Vernon, Texas	Corsicana, Texas	37½
Vernon, Texas	Electra, Texas	15
Vernon, Texas	Fort Worth, Texas	30
Vernon, Texas	Humble, Texas	45
Vernon, Texas	Port Arthur, Texas	50
Vernon, Texas	West Dallas, Texas	32½
Vernon, Texas	Wichita Falls, Texas	17½
Webster, Texas	Baytown, Texas	5
Webster, Texas	Texas City, Texas	5
West Columbia, Texas	Baytown, Texas	15
West Columbia, Texas	Houston, Texas	25
West Columbia, Texas	Humble, Texas	30
West Columbia, Texas	Port Arthur, Texas	35
West Columbia, Texas	Texas City, Texas	15
Wilson Ranch, Texas	Bridgeport, Texas	27½
Wilson Ranch, Texas	Corsicana, Texas	37½
Wilson Ranch, Texas	Electra, Texas	17½
Wilson Ranch, Texas	Fort Worth, Texas	30
Wilson Ranch, Texas	Humble, Texas	45
Wilson Ranch, Texas	Port Arthur, Texas	50
Wilson Ranch, Texas	West Dallas, Texas	32½
Wilson Ranch, Texas	Wichita Falls, Texas	17½
Wortham, Texas	Humble, Texas	30
Wortham, Texas	Mexia, Texas	12½
Wortham, Texas	Port Arthur, Texas	35

FREIGHT RATES ON CRUDE PETROLEUM

In Tank Cars, Carloads, from Points in Texas to Texas Gulf Ports, for Export and Coastwise Movement

NOTE—Rates are stated in cents per 100 pounds and are subject to change without notice other than as required by law.

From—	Bay-town	To the Beau-mont	Following Galves-ton	Texas Hous-ton	Gulf Orange	Ports Port Arthur	Texas City
Abell	25	20	20	20	25	21½	20
Abilene	20	*24½	20	20	*24½	*24½	*24½
Albany	20½	20½	19	19	20½	20½	19
Almeda	*24½	*24½	*24½	*24½	*24½	*24½	*24½
Amarillo	20	21½	20	20	20	21½	20
Anchor	*24½	*24½	*24½	*24½	*24½	*24½	*24½
Angelita	16½	16½	16½	16½	16½	16½	16½
Annarene	18	18	18	18	18	18	18
Archer City	18	18	18	18	18	18	18
Arnat	20½	20½	20½	20½	20½	20½	20½
Atreco	..	*14	16½	16½	*16½	..	16½
Austin	19	19	19	19	19	19	19
Bangs	24½	20	15	12	24	21½	12
Barnhart	..	..	17	17	..	..	17
Baytown	14	14	14	11	14	14	14
Beaumont	..	..	14	14	11	..	14
Benonino	20	20	20	20	20	21½	20
Best	..	..	17	17	..	..	17
Big Lake	..	..	17	17	..	..	17
Blue Ridge	*24½	*24½	*24½	*24½	*24½	*24½	*24½
Boling	11	11	11	10	11	11	11
Borger	25	20	20	20	25	21½	20
Brady	24½	24½	24½	24½	24½	24½	24½
Brazos	20	20½	20	20	20½	20½	20
Breckenridge	18	18	18	18	18	18	18
Breckwalker	20½	20½	20½	20½	20½	20½	20½
Bridgeport	18	18	18	18	18	18	18
Brownwood	24½	20	15	12	24	21½	12
Bruni	16½	16½	16½	16½	16½	16½	16½
Bryan Mound	..	*16½	†22½	†22½	*16½	..	*22½
Bullock	18	18	18	18	18	18	18
Burkburnett	20½	20½	18	18	20½	20½	18
Carbon	20½	20½	19	19	20½	20½	19
Carroll	20½	20½	20½	20½	20½	20½	20½
Cedar Bayou	14	14	14	14	14	14	14
Chaison	..	..	16½	16½	..	..	16½
Cisco	20	20½	19	19	20½	20½	19
Coahoma	20	21½	20	20	..	21½	20
Coleman	24½	20	20	20	24	21½	20
Colorado	20	27	20	27	27	21½	20
Comanche	*24½	*24½	*24½	*24½	*24½	*24½	*24½
Comyn	20½	20½	19	19	20½	20½	19
Corsicana	14	14	14	13	14	14	14
Cuyler	25	20	20	20	25	21½	20
Dallas	18	18	18	18	18	18	18
Dale	11	11	11	10	11	11	11
Damon	*24½	*24½	*24½	*24½	*24½	*24½	*24½
Dayton	..	11	14	14	11	..	14
Deal	20	20	20	20	20	21½	20
De Leon	20½	20½	19	19	20½	20½	19
Denison	20½	18	18	18	18	18	18
Denton	20½	20½	18	18	20½	20½	18
Desdemona	20½	20½	20½	20½	20½	20½	20½
Diana	..	14	14	14	11	..	14
Dublin	20½	20½	19	19	20½	20½	19
Duster	20½	20½	20½	20½	20½	20½	20½
Eagle Ford	20½	20½	18	18	20½	20½	18
East Columbia	*24½	*24½	*24½	*24½	*24½	*24½	*24½
Eastland	20	20½	20	20	20½	20½	20
Edhobby	20½	20½	20½	20½	20½	20½	20½
Edruvera	18	18	18	18	..	18	18
Electra	18	18	18	18	18	18	18
Eliasville	18	18	18	18	18	18	18
Faulkner	20	20	20	20	20	21½	20
Flat Rock	22½	..	18	18	..	..	18
Folsom	25	20	20	20	25	21½	20
Fort Stockton	18	18	18	18	..	18	18
Fort Worth	18	17	17	17	18	18	17
Frankell	20½	20½	20½	20½	20½	20½	20½
Freeport	..	..	†22½	†22½	..	..	†22½
Fritch	20	20	20	20	20	21½	20
Fuller	20	20	20	20	20	21½	20
Gainesville	18	20½	18	18	20½	20½	18
Galveston	16½	16½	..	..	16½	16½	..
Gardendale	24	24	24	24	24	24	24
Gates	20½	20½	18	18	20½	20½	18
Girvin	18	18	18	18	..	18	18
Goose Creek	..	14	14	14	14	14	14
Gordon	20	20½	20	20	20½	20½	20
Gorman	20½	20½	19	19	20½	20½	19
Graham	18	18	18	18	18	18	18
Grayburg	14	14	14	14	14	..	14
Groom	20	20	20	20	20	21½	20
Gudger	18	18	18	18	18	18	18
Gulf Hill	..	24½	22½	22½	24½	24½	22½
Gunsight	20½	20½	20½	20½	20½	20½	20½
Harrys	20½	20½	18	18	20½	20½	18
Henrietta	18	18	18	18	18	18	18
Higgins	..	*14	16½	16½	..	..	16½
Hight	20½	20½	20½	20½	20½	20½	20½
Hillard	25	20	20	20	25	21½	20
Hodge	20½	20½	18	18	20½	19½	18
Holliday	18	18	18	18	18	18	18
Houston	11	11	11	..	11	11	11
Hull	14	14	14	14	14	..	14
Humble	14	14	14	14	14	14	14
Humphreys	14	14	14	13	14	14	14
Hurdle	22½	18	18	18	..	18	18
Hydro	20½	20½	20½	20½	20½	20½	20½
Iowa Park	18	18	18	18	18	18	18
Jacksboro	18	18	18	18	18	18	18
Jakehamon	20½	20½	20½	20½	20½	20½	20½
Jermyn	20½	20½	20½	20½	20½	20½	20½
Jimkurn	18	18	18	18	18	18	18
Judkin	20	..	20	20	..	..	20
Kerens	..	..	..	..	..	..	..
Ketch	20½	20½	20½	20½	20½	20½	20½
Kings Mill	25	20	20	20	25	21½	20
Kirk	24	24	24	24	24	24	24
Kirvin	14	14	14	13	14	14	14
Kosse	..	..	..	..	..	..	..
Lake Wichita	18	18	18	18	18	18	18
Lark	20	20	20	20	20	21½	20
Lee	25	20	20	20	25	21½	20
Leeray	20½	20½	20½	20½	20½	20½	20½
Lela	20	20	20	20	20	21½	20
Leon	20	20½	20	20	20½	20½	20
Lucas	..	*16½	16½	16½	*16½	..	16½
Lukewilson	18	18	18	18	18	18	18
Luling	11	11	11	10	11	11	11
McBride	25	20	20	20	25	21½	20
McCamey	18	18	18	18	..	18	18
McLean	20	20	20	20	20	21½	20
Mangum	20½	20½	20½	20½	20½	20½	20½
Mankins	18	18	18	18	18	18	18
Maples	18	18	18	18	18	18	18
Marston	20	20½	20	20	20½	20½	20
Mauriceville	..	14	14	14	14	..	14
Mayer	20	20	20	20	20	21½	20
Megargel	20½	20½	20½	20½	20½	20½	20½
Menard	*24½	*24½	*24½	*24½	*24½	*24½	*24½
Mercury	*24½	*24½	*24½	*24½	*24½	*24½	*24½
Merkle	20	24½	20	20	24½	21½	20
Metz	20	..	20	20	..	..	20
Mertzon	..	..	17	17	..	..	17
Mexia	14	14	14	13	14	14	14
Mineral Wells	18	18	18	18	18	18	18
Minerva	20½	20½	20½	20½	20½	20½	20½
Mingus	20	20½	20	20	20½	20½	20
Mirando City	16½	16½	16½	16½	16½	16½	16½
Monahans	20	..	20	20	..	..	20
Monument	..	..	17	17	..	..	17
Moran	20½	20½	19	19	20½	20½	19

*Applies on export traffic only.
†On coastwise traffic.

From—	Bay-town	To the Beau-mont	Following Galves-ton	Texas Hous-ton	Gulf Orange	Ports Port Arthur	Texas City
Mt. Belvieu	..	14	14	14	14	14	14
Muenster	18	20½	18	18	20½	20½	18
Munger	..	..	..	..	..	..	..
Nacogdoches	14	14	14	14	14	14	14
Nash	20	20	20	20	20	21½	20
Navarro	14	14	14	13	14	14	14
Newcastle	18	18	18	18	18	18	18
Niblock	24½	24½	24½	24½	24½	24½	24½
Nocona	18	..	..	..	..	..	..
Noleda	16½	16½	16½	16½	16½	16½	16½
Oil City	20	20	20	20	20	21½	20
Oilfield	11	11	11	10	11	11	11
Olden	20	20½	20	20	20½	20½	20
Olney	18	18	18	18	18	18	18
Orange	..	14	14	14	..	..	14
Owego	18	18	18	18	..	18	18
Pampa	25	20	20	20	25	21½	20
Panhandle	25	20	20	20	25	21½	20
Parkdale	11	11	11	10	11	11	11
Parks	20½	20½	20½	20½	20½	20½	20½
Petrolia	18	18	18	18	18	18	18
Pierce Junction	16½	16½	..	..	16½	16½	..
Pioneer	20½	20½	20½	20½	20½	20½	20½
Plateau	20½	20½	20½	20½	20½	20½	20½
Pomeroy	25	20	20	20	25	21½	20
Port Arthur	..	*14	16½	16½	*16½	..	16½
Powell	14	14	14	13	14	14	14
Primrose	20½	20½	20½	20½	20½	20½	20½
Proctor	*24½	*24½	*24½	*24½	*24½	*24½	*24½
Pyote	20	..	20	20	..	..	20
Ramsdell	20	20	20	20	20	21½	20
Ranger	20	20½	20	20	20½	20½	20
Rankin	22½	18	18	18	..	18	18
Rising Star	20½	20½	20½	20½	20½	20½	20½
Robertsville	..	14	14	14	14	..	14
Rockledge	20	20	20	20	20	21½	20
Roeser	20½	20½	20½	20½	20½	20½	20½
Round Lake	..	*16½	16½	16½	*16½	..	16½
Rucker	20½	20½	19	19	20½	20½	19
Ruliff	..	14	14	14	14	..	14
St. Francis	25	20	20	20	25	21½	20
St. Jo	18	20½	18	18	20½	20½	18
Sabine	..	*16½	16½	16½	*16½	..	16½
Saginaw	18	18	18	18	18	18	18
San Angelo	24½	24½	15	15	24½	24½	15
San Antonio	18	18	18	18	19	18	18
Sanford	20	20	20	20	20	21½	20
Santa Anna	24½	20	15	12	24	21½	12
Saratoga	..	24½	22½	22½	24½	24½	22½
Shamrock	20	20	20	20	20	21½	20
Sherman	20½	20½	20½	20½	20½	18	20½
Sipe Springs	20½	20½	20½	20½	20½	20½	20½
Skellytown	25	20	20	20	25	21½	20
Somerset	20½	20½	20½	20½	20½	20½	20½
Sour Lake	..	*16½	16½	16½	*16½	..	16½
South Bend	18	18	18	18	18	18	18
South Bosque	20½	20½	20½	20½	20½	20½	20½
South Hanlon	20½	20½	20½	20½	20½	20½	20½
Spindletop	..	*14	16½	16½	..	..	16½
Stamford	*24½	*24½	*24½	*24½	*24½	*24½	*24½
Stephenville	20½	20½	20½	20½	20½	20½	20½
Stinnett	20	20	20	20	20	21½	20
Strawn	20	20½	20	20	20½	20½	20
Stribling	14	14	14	13	14	14	14
Suggs	..	..	17	17	..	..	17
Sullivan	11	11	11	10	11	11	11
Sun	..	*14	16½	16½	..	..	16½
Swain	18	18	18	18	18	18	18
Sweetwater	20	24½	20	20	24½	21½	20
Tankersley	..	..	17	17	..	..	17
Teague	14	14	14	13	14	14	14
Terry	..	14	14	14	11	..	14
Texas City	16½	16½	..	..	16½	16½	..
Texon	..	..	17	17	..	..	17
Three Rivers	18	19	19	19	19	19	19
Thurber	20	20½	20	20	20½	20½	20
Tiffin	20	20½	20	20	20½	20½	20
Trent	20	24½	20	20	24½	21½	20
Trigg	18	18	18	18	18	18	18
Uni	..	..	..	..	..	..	..
Uvalde Junction	*24½	*24½	*24½	*24½	*24½	*24½	*24½
Velasco	..	*16½	†22½	†22½	*16½	..	†22½
Victoria	20½	*20½	20½	20½	*20½	20½	20½
Vernon	20½	..	20	20	..	..	20
Waco	20½	20½	18	18	20½	20½	18
Waskom	14	14	14	14	14	14	14
Wayland	20½	20½	20½	20½	20½	20½	20½
Westbrook	20	27	20	20	27	21½	20
Whited	20	20	20	20	20	21½	20
White Deer	25	20	20	20	25	21½	20
Whiteland	24½	24½	24½	24½	24½	24½	24½
Wichita Falls	18	18	18	18	18	18	18
Wiles	20	20½	20	20	20½	20½	20
Wilhelm	20	20	20	20	20	21½	20
Winchell	*24½	*24½	*24½	*24½	*24½	*24½	*24½
Wise	..	14	14	14	14	14	14
Yarnall	20	20	20	20	20	21½	20

*Applies on export Traffic only.
†On coastwise traffic.

DOMESTIC FREIGHT RATES ON CRUDE OIL

In Tank Cars, Carloads, Between Points in Texas

Cents per hundred pounds.

From—To—	Rate
Abell, Atreco	21½
Abell, Baytown	21½
Abell, Beaumont	20
Abell, Fort Worth	15
Abell, Gainesville	15½
Abell, Galveston	20
Abell, Houston	20
Abell, Magpetce	21½
Abell, Nederland	21½
Abell, Port Neches	21½
Abell, Port Arthur	21½
Abell, Sabine	21½
Abell, Sabine Pass	21½
Abell, Smiths Bluff	21½
Abell, Sun	21½
Abell, West Port Arthur	21½
Amarillo, Beaumont	20
Amarillo, El Paso	29
Amarillo, Fort Worth	12
Amarillo, Gainesville	15½
Amarillo, Galveston	20
Amarillo, Gates	17
Amarillo, Graham	15
Amarillo, Harrys	17
Amarillo, Mexia	15½
Amarillo, Megargel	15
Amarillo, Olney	15
Amarillo, Port Arthur	21½
Amarillo, Sabine	21½
Amarillo, Texas City	20
Amarillo, Wichita Falls	10
Best, El Paso	20
Best, Port Arthur	21½
Borger, Amarillo	7
Borger, Atreco	21½
Borger, Baytown	21½
Borger, Beaumont	20
Borger, Fort Worth	15
Borger, Gainesville	15½
Borger, Galveston	20
Borger, Houston	20
Borger, Magpetco	21½
Borger, Nederland	21½
Borger, Port Neches	21½
Borger, Port Arthur	21½
Borger, Sabine	21½
Borger, Sabine Pass	21½
Borger, Smiths Bluff	21½
Borger, Sun	21½
Borger, Texas City	20
Bruni, Atreco	16½
Bruni, Baytown	16½
Bruni, Beaumont	16½
Bruni, *Corpus Christi	11
Bruni, Galveston	16½
Bruni, Houston	16½
Bruni, *Ingleside	11
Bruni, Laredo	7½
Bruni, Magpetco	16½
Bruni, Nederland	16½
Bruni, Orange	16½
Bruni, Port Neches	16½
Bruni, *Port Aransas	11
Bruni, Port Arthur	16½
Bruni, Sabine Pass	16½

From—To—	Rate
Bruni, Smiths Bluff	16½
Bruni, Somerset	16½
Bruni, Sun	16½
Bruni, San Antonio	14½
Burkburnett, Dodsonville	19
Burkburnett, Wellington	19
Coahoma, Eagle Ford	14½
Coahoma, Fort Worth	14½
Coahoma, Gates	14½
Coahoma, Grand Prairie	14½
Coahoma, Harrys	14½
Coahoma, Oriental	14½
Corsicana, Atreco	13
Corsicana, Baytown	13
Corsicana, Beaumont	13
Corsicana, Chaison	13
Corsicana, Galveston	13
Corsicana, Houston	13
Corsicana, Lucas	13
Corsicana, Magpetco	13
Corsicana, Orange	13
Corsicana, Port Arthur	13
Corsicana, Port Neches	13
Corsicana, Sabine Pass	13
Corsicana, Smiths Bluff	13
Corsicana, Sun	13
Corsicana, Texas City	13
Del Rio, Baytown	14
Del Rio, Beaumont	14
Del Rio, Galveston	14
Del Rio, Houston	14
Del Rio, Orange	14
Del Rio, Port Arthur	14
Del Rio, Sabine	14
Del Rio, Texas City	14
Electra, El Paso	29
Eliasville, Wichita Falls	6
Folsom, Atreco	21½
Folsom, Baytown	21½
Folsom, Beaumont	20
Folsom, Galveston	20
Folsom, Houston	20
Folsom, Port Arthur	21½
Folsom, Sabine	21½
Folsom, Wichita Falls	15
Fort Worth, Dodsonville	32½
Fort Worth, Wellington	32½
Frankell, Breckenridge	7½
Fritch, Bridgeport	15
Fritch, Gates	17
Fritch, Gainesville	15½
Fritch, Graham	15
Fritch, Harrys	17
Fritch, Houston	20
Fritch, Olney	15
Fritch, Oriental	17
Fritch, Wichita Falls	15
Gainesville, Dodsonville	32½
Gainesville, Wellington	32½
Hempstead, Baytown	10
Henrietta, Dodsonville	32½
Henrietta, El Paso	29
Henrietta, Wellington	32½
High Island, Lucas	9
Hillard, Atreco	21½
Hillard, Baytown	21½
Hillard, Beaumont	20
Hillard, Galveston	20
Hillard, Houston	20
Hillard, Port Arthur	21½
Hillard, Texas City	20
Hillard Wichita Falls	15
Humble, Houston	8½
Humphreys, Atreco	13
Humphreys, Baytown	13
Humphreys, Beaumont	13
Humphreys, Chaison	13
Humphreys, Galveston	13
Humphreys, Houston	13
Humphreys, Lucas	13
Humphreys, Magpetco	13
Humphreys, Orange	13
Humphreys, Port Arthur	13
Humphreys, Port Neches	13
Humphreys, Sabine Pass	13
Humphreys, Smiths Bluff	13
Humphreys, Sun	13
Humphreys, Texas City	13
Iowa Park, Dodsonville	32½
Iowa Park, El Paso	29
Iowa Park, Wellington	32½
Jermyn, Fort Worth	10
Jermyn, Grand Prairie	10
Jermyn, Harrys	10
Jermyn, Oriental	10
Judkins, Eagle Ford	16
Judkins, Fort Worth	16
Judkins, Gates	16
Judkins, Grand Prairie	16
Judkins, Harrys	16
Judkins, Oriental	16
Ketck, Breckenridge	7½
Kings Mills, Atreco	21½
Kings Mills, Baytown	21½
Kings Mills, Beaumont	20
Kings Mills, Galveston	20
Kings Mills, Houston	20
Kings Mills, Magpetco	21½
Kings Mills, Port Neches	21½
Kings Mills, Port Arthur	21½
Kings Mills, Sabine	21½
Kings Mills, Sabine Pass	21½
Kings Mills, Wichita Falls	15
Lela, Bridgeport	15
Lela, Gainesville	15½
Lela, Gates	17
Lela, Graham	15
Lela, Galveston	20
Lela, Houston	20
Lela, Mexia	15½
Lela, Olney	15
Lela, Oriental	17
Lela, Texas City	20
Lela, Wichita Falls	15
McBride, Atreco	21½
McBride, Baytown	21½
McBride, Beaumont	20
McBride, Fort Worth	15
McBride, Gainesville	15½
McBride, Galveston	20
McBride, Houston	20
McBride, Magpetco	21½
McBride, Nederland	21½
McBride, Port Neches	21½
McBride, Port Arthur	21½
McBride, Sabine Pass	21½
McBride, Smiths Bluff	21½
McBride, Texas City	20
McBride, Wichita Falls	15
McCamey, Baytown	21½
McCamey, Bickel Spur	3½
McCamey, Electra	17½
McCamey, Iowa Park	17½
McCamey, Marland	7
McCamey, Port Arthur	21½
McCamey, San Angelo	10
McCamey, Sweetwater	12
McCamey, Wichita Falls	17½
McLean, Bridgeport	15
McLean, Fort Worth	15
McLean, Gainesville	15½
McLean, Gates	17
McLean, Graham	15
McLean, Houston	20
McLean, Mexia	15½
McLean, Olney	15
McLean, Oriental	17
McLean, Wichita Falls	15
Midland, Atreco	21½
Midland, Baytown	21½
Midland, Beaumont	21½
Midland, Chaison	21½
Midland, Galveston	21½
Midland, Houston	21½
Midland, Magpetco	21½
Midland, Port Neches	21½
Midland, Port Arthur	21½
Midland, Smiths Bluff	21½
Megargel, Fort Worth	10
Megargel, Grand Prairie	10
Megargel, Harrys	10
Megargel, Oriental	10
Mexia, Atreco	13
Mexia, Baytown	13
Mexia, Beaumont	13
Mexia, Chaison	13
Mexia, Dallas	11
Mexia, Galveston	13
Mexia, Houston	13
Mexia, Magpetco	13
Mexia, Port Arthur	13
Mexia, Port Neches	13
Mexia, Sabine Pass	13
Mexia, Smiths Bluff	13
Mexia, Sun	13
Mexia, Texas City	13
Mirando City, Atreco	16½
Mirando City, Baytown	16½
Mirando City, Corpus Christi	11
Mirando City, Beaumont	16½
Mirando City, El Paso	23
Mirando City, Galveston	16½
Mirando City, Houston	16½
Mirando City, *Ingleside	11
Mirando City, Orange	16½
Mirando City, *Port Aransas	11
Mirando City, Port Arthur	16½
Mirando City, Port Neches	16½
Mirando City, Sabine Pass	16½
Mirando City, Smiths Bluff	16½
Mirando City, Somerset	16½
Mirando City, Sun	16½
Mirando City, Texas City	16½
Mt. Belbieu, Baytown	5
Mt. Belbieu, Beaumont	10
Mt. Belbieu, Chaison	10
Mt. Belbieu, Galveston	10
Mt. Belbieu, Houston	10
Mt. Belbieu, Orange	10
Mt. Belbieu, Port Arthur	10
Mt. Belbieu, Texas City	10
Muenster, Gainesville	6
Noleda, Atreco	16½
Noleda, Baytown	16½
Noleda, Beaumont	16½
Noleda, *Corpus Christi	11
Noleda, Galveston	16½
Noleda, Houston	16½
Noleda, Ingleside	11
Noleda, Orange	16½
Noleda, Magpetco	16½
Noleda, Nederland	16½
Noleda, *Port Aransas	11
Noleda, Port Neches	16½
Noleda, Port Arthur	16½
Noleda, Sabine Pass	16½
Noleda, Sun	16½
Noleda, Texas City	16½
Oilfield, Atreco	13
Oilfield, Baytown	13
Oilfield, Beaumont	13
Oilfield, Chaison	13
Oilfield, El Paso	29
Oilfield, Galveston	13
Oilfield, Houston	13
Oilfield, Lucas	13
Oilfield, Magpetco	13
Oilfield, Orange	13
Oilfield, Port Aransas	13
Oilfield, Port Arthur	13
Oilfield, Port Neches	13
Oilfield, Sabine Pass	13
Oilfield, Smiths Bluff	13
Oilfield, Sun	13
Oilfield, Texas City	13
Panhandle, Amarillo	5
Panhandle, Atreco	21½
Panhandle, Baytown	21½
Panhandle, Beaumont	20
Panhandle, Fort Worth	15
Panhandle, Galveston	20
Panhandle, Houston	20

*Applies on shipments via vessels to other Texas Gulf ports.

From—To—	Rate
Panhandle, Magpetco	21½
Panhandle, Nederland	21½
Panhandle, Port Arthur	21½
Panhandle, Port Neches	21½
Panhandle, Sabine Pass	21½
Panhandle, Smiths Bluff	21½
Panhandle, Texas City	20
Panhandle, Wichita Falls	15
Petrolia, Dodsonville	32½
Petrolia, El Paso	29
Petrolia, Wellington	32½
Pioneer, Cisco	10
Port Arthur, Beaumont	6½
Port Arthur, Orange	6½
Powell, Atreco	13
Powell, Baytown	13
Powell, Beaumont	13
Powell, Chaison	13
Powell, Fort Worth	13½
Powell, Galveston	13
Powell, Houston	13
Powell, Lucas	13
Powell, Magpetco	13
Powell, Orange	13
Powell, Port Arthur	13
Powell, Port Neches	13
Powell, Sabine Pass	13
Powell, Smiths Bluff	13
Powell, Sun	13
Powell, Texas City	13
Pyote, Eagle Ford	17
Pyote, El Paso	17
Pyote, Fort Worth	17
Pyote, Gates	17
Pyote, Grand Prairie	17
Pyote, Harrys	17
Pyote, Oriental	17
Ricardo, Baytown	15
Ricardo, Galveston	15
Ricardo, Houston	15
Ricardo, Texas City	15
Skellytown, Atreco	21½
Skellytown, Baytown	21½
Skellytown, Beaumont	20
Skellytown, Fort Worth	15
Skellytown, Galveston	20
Skellytown, Gainesville	15½
Skellytown, Houston	20
Skellytown, Magpetco	21½
Skellytown, Nederland	21½
Skellytown, Port Arthur	21½
Skellytown, Port Neches	21½
Skellytown, Sabine Pass	21½
Skellytown, Wichita Falls	15
South Bend, Wichita Falls	6
Steber, Port Arthur	9
Swain, Breckenridge	10
Trent, Fort Worth	10
Trent, Gainesville	17
Trent, Gates	10
Trent, Grand Prairie	10
Trent, Harrys	10
Trent, Oriental	10
Trent, Tiffin	8
Three Rivers, San Antonio	10½
Vernon, Atreco	21½
Vernon, Baytown	21½
Vernon, Beaumont	21½
Vernon, Chaison	21½
Vernon, Port Arthur	21½
Vernon, Sabine Pass	21½
Wichita Falls, Dodsonville	19
Wichita Falls, El Paso	29
Wichita Falls, Wellington	19
Wickett, Eagle Ford	17
Wickett, Fort Worth	17
Wickett, Gates	17
Wickett, Grand Prairie	17
Wickett, Harrys	17
Wickett, Oriental	17

Mexia-Corsicana District Has Become Big Storage Center

(Continued from page 54)

which is not operating at capacity and not likely to until new fields are uncovered in the area it serves. About 115 miles of pipe will be required to build over to San Augustine station, thus avoiding a great expense in laying a much longer line parallel the present Corsicana-Port Arthur system, which is loaded to capacity.

Sinclair Pipe Line Company has a maximum daily capacity of 35,000 barrels on its eight-inch looped line extending from the Mexia district to Houston, and this unit is fed by a direct line from the upper Mid-Continent and Central West Texas districts. The Pure Oil Pipe Line Company of Texas is operating under a similar arrangement as Sinclair, although the Pure line's capacity is 30,000 barrels daily, and terminates at Smiths Bluff, near Beaumont. These two lines are taking oil controlled by contract in the Mexia-Corsicana district, and same is supplemented by sweet oils from the Mid-Continent district.

Gulf Pipe Line Company has an eight and a six-inch line from the Mexia-Corsicana district to Lufkin station, which is located in East Texas and on Gulf's principal Mid-Continent system. The former unit is rated good for more than 24,000 barrels daily, and is handling considerable West Texas oil through a connection with the Ranger line as well as handling Gulf's current production in the Mexia-Corsicana district.

Trunk Line Capacity

The maximum daily capacity of the trunk lines extending south from the Mexia-Corsicana district to tidewater is listed below:

Company	Barrels
Magnolia Pipe Line Company	110,000
Humble Pipe Line Company	110,000
The Texas Pipe Line Company	50,000
Sinclair Pipe Line Company	35,000
Pure Oil Pipe Line Co. of Texas	30,000
Gulf Pipe Line Company	24,000
Total	359,000

Surplus steel storage facilities held in the Mexia-Corsicana district by major pipe line companies and local producers has resulted in a varied assortment of crude being assembled at this gateway to the Gulf Coast refining and tanker terminals, and nearly every field in the Mid-Continent, Panhandle and West Texas districts have contributed crudes that are now being stored in this district pending removal to the Coast. Total steel storage facilities on May 1 was estimated at 23,510,000 barrels, with 9,743,155 barrels of mixed grades of crude on hand, leaving approximately 13,766,845 barrels of idle room.

Over-production in the Texas Panhandle and later in the West Texas districts within the past three years has resulted in large reductions being made on steel storage in the Mexia-Corsicana district. Magnolia, Prairie, Pure, Humble, Simms, Atlantic and other have dismantled tanks in this district for removal to other sections of the State, or to the Greater Seminole district, and this practice of cutting down tanks is still under way.

The high mark on steel storage facilities in the Mexia-Corsicana district was reached during April, 1925, with a total of 39,000,000 barrels, and about 15,500,000 barrels has been cut down and removed to other fields within the past three years. The crude stocks in this district reached their peak on January 1, 1925, when 28,233,900 barrels was on hand. This overbuilding of storage was largely due to the "production scare" made by the Wortham field, while some companies had to erect storage at Corsicana-Powell and Wortham for protection, even though there was idle tankage held in the district by other concerns.

Hiawatha Dome Fire

Denver, Colo.—Ohio Oil Company's shut-in gasser on Hiawatha Dome, section 22-12n-100, was struck by lightning and all inflammable material above ground was destroyed. The derrick was badly damaged. The gas, being shut in, was not ignited.

Plan Shale Plant

De Beque, Colo.—George W. Wallace, chief engineer for the N. T. U. Company of New York City, has announced that his company is preparing to build a shale oil plant and refinery in the Uinta Basin of Utah with a total investment of $8,000,000. The plant is to have a capacity for handling 12,000 tons of shale per day. Dubb process will be installed for the extraction of the gasoline. Employement will be given to 350 men.

Production Increased

Denver, Colo.—Deeper drilling in four of its Tow Creek field wells has materially increased their production, according to report by Texas Production Company. Before having been deepened the wells made 100 barrels in the aggregate; now they are producing a total of some 400 barrels per day. The lower pay was found in a broken formation in the Niobrara shale at about 3000 feet.

To Operate Canadian Property

Great Falls, Mont.—E. B. Coolidge, president of Hardrock Oil Company, has announced the consummation of the deal whereby the operations in the Rogers field, just north of the international boundary, will be taken over by Mr. Coolidge, E. J. Hubbert, and their associates. Permit to operate the field and market the gas therefrom was recently granted by the Dominion government. The Rogers gasser is the largest well in the British Empire; it has been capped for the last three years because of lack of a market for its flow. It was completed with an initial, measured, flow of more than 62,000,000 cubic feet per day.

Companies Own Private Docks On Texas Coasts

(*Continued from page 70*)

and is about two miles east of the Spindle Top field. In the edge of that field the Yount-Lee Oil Company has a tank farm consisting of 44 steel 55,000-barrel tanks. Near the dock at the river, the company has four additional 55,000-barrel steel tanks, and the centrifugal pumps for loading tankers are in a station located near those four tanks.

The Yount-Lee Company has about 80 per cent. of the Spindle Top production, approximately 32,000 barrels per day. It conveys the oil produced daily to the tank farm through two six-inch lines from the field, using steam pumps.

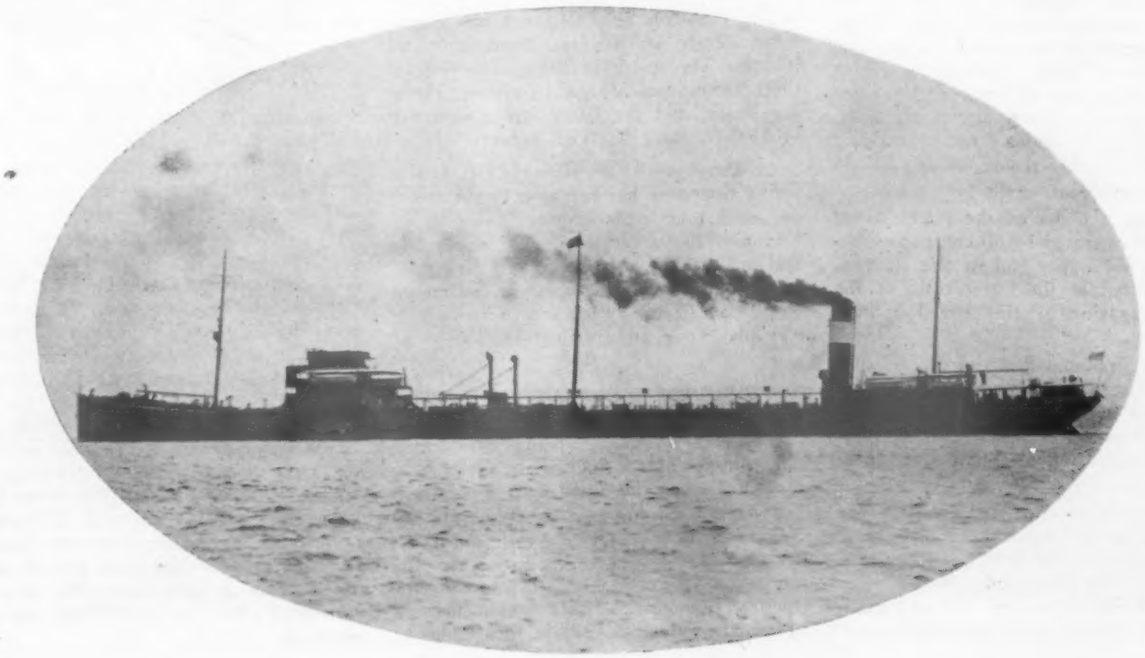
At the edge of the tank farm the company has a pump station which it uses in pumping oil from the tanks of the farm to the four at the loading dock—or to other companies. About three-quarters of the production goes out by pipe line to Magnolia and other companies. The remaining 25 per cent. consisting of approximately 250,000 barrels per month, is shipped out from the dock. The pump station at the tank farm, Station No. 1, is equipped with four electrically driven Gardner pressure pumps, and can move the oil from the tank farm to the four tanks at the river at the rate of about 1700 barrels per hour. These pressure pumps are supplied from the tank farm by two 10-inch suction pipes, and after going through the station, the oil merges through two six-inch lines which lead to a manifold near the station, at which point it can be directed either to outside purchasers or to the four tanks at the terminal. The centrifugal pumps are in a station on an incline immediately adjoining the tanks. This is the River Station of the company. The centrifugal pumps are supplied through two 10-inch suction lines from each of the four tanks, a manifold just outside the pump station making it convenient to load from any of the four tanks. Usually two of the tanks are tied in while loading a tanker. The two Dayton Dowd centrifugal pumps that are used are driven by 150-horsepower General Electric induction motors. Forced along by the pumps, the oil goes to the docks through three pipe lines, two 10-inch, and one eight-inch. These pipes are above the ground, as is usually the case at loading docks.

At its terminal at Smiths Bluff, which is about seven miles down the river from the Yount-Lee dock, the Pure Oil Company uses the same loading facilities for crude and refined products, but has separate centrifugal pump stations. The pumps used in loading refined goods are in the regular pump house in the refinery grounds, about 2000 feet from the river; and for loading the crude oil there are two separate stations in the tank farm, one station being equipped with three Worthington centrifugal pumps and the other with two. Only one of the two stations is ordinarily used at the same time; one usually handles about 5200 barrels per hour and the other 5500 barrels. Leading to the dock are five pipe lines: two 10-inch lines for crude oil, one 12-inch for gasoline, one 12-inch for kerosene, and one one-eighth-inch for fuel oil. After loading a vessel, and cutting off the pumps, air is blown through the hose, the supply of air being from the refinery; by this means all the oil is removed from the hose after loading without having to resort to draining it into containers on the docks, as is the case at some terminals.

During 1927, the total water shipments from Smiths Bluff were about 11,000,000 barrels. During April, 1928, total shipments of gasoline, kerosene, crude and fuel oil shipped by steamer and barges, both coastwise and foreign, aggregated 997,685 gross barrels; of this amount, crude and fuel oil constituted 679,400 barrels; the boats loaded included 10 ships, 13 barges, and 10 boats that were bunkered. So far this year the Pure Oil Company has loaded 38 ships, 95 barges, and 37 ships and tugs taking bunkers. The Smiths Bluff terminal receives oil from the Mexia district, Winkler and other West Texas pools, Seminole, El Dorado, and Sweet Lake, Louisiana, some of it coming in by barge, and by tank car as well as by pipe line. About 50 tank cars come in daily bringing Seminole oil.

The Ship Channel which leads from Beaumont to the Gulf of Mexico as stated before, is 50 miles long. From the city docks it follows the Neches River to its mouth at the northern end of Sabine Lake, a distance of 20 miles. Beginning at Beaumont and naming the various oil terminals on this 20-mile section of the ship channel, they are as follows: Magnolia Petroleum Company's Refinery, two miles below the city docks, or 48 miles from the Gulf, where most of the products shipped out are refined oils; Yount-Lee Oil Company's crude oil terminal, 44.4 miles from the Gulf; Sun Oil Company's terminal, handling crude oil only, 37.2 miles from the Gulf; Pure Oil Company's terminal at Smiths Bluff, 37 miles; Port Mag-Pet-Co, 36 miles, a Magnolia crude terminal; Port Neches, 34 miles, where The Texas Company has an asphalt plant and handles asphalt products altogether; Port Atreco, 30 miles, crude terminal of the Atlantic Oil Producing Company; and Humble Oil & Refining Company's dock, used for loading crude. The Humble dock is at the mouth of the Neches River.

From that point the ships pass into the Sabine Neches Canal, running along the edge of Sabine Lake to Port Arthur, a distance of 14 miles. Sabine Lake itself is a large shallow body of water, about



six feet deep; and the Sabine Neches Canals is separated from it by several hundred feet. Below the city docks at Port Arthur are the great loading docks of the Gulf Refining Company and of The Texas Company; they are about 17 miles from the Gulf. From Port Arthur the ships proceed toward the coast through the Port Arthur Channel, a continuation of the Sabine Neches Canal, skirting the lower end of Sabine Lake; and at a point 10 miles from the Gulf the canal runs into Sabine Pass, a deep channel through which water drains from Sabine Lake into the Gulf. On Sabine Pass is located the last of the oil terminals, belonging to the Sun Oil Company. Throughout all this course from Beaumont to the Gulf there is 30 feet of water.

Connecting up with the Sabine Neches Canal also is a canal extending from Sabine Lake up the Sabine River to Orange, and one extending via the Inter-Coastal Canal and the Calcasieu River to Lake Charles, Louisiana. Through the canal to Lake Charles considerable oil is moved by barge. Along this route barges regularly go directly into the Sweet Lake field, owned by Pure Oil Company; into the new Kelso Bayou field, owned principally and operated jointly by the Calcasieu Oil Company, Magnolia Petroleum Company and the Union Sulphur Company; and sea-going tankers go to the Lockport field, owned jointly by Vacuum Oil Company and the Gulf Refining Company. Lockport is on the Calcasieu River, a short distance below Lake Charles. During the first three months of 1928 the Vacuum Oil Company, from its crude oil terminal there, shipped 509,895 barrels, consisting chiefly of Lockport production, but partly of Urania crude. Besides the above named three Louisiana fields, there is one other, Vinton, which has a water outlet, being connected with the Coastal Canal through a pipe line of the Sun Oil Company.

Houston Ship Channel

The chief oil shipping point on the Houston Ship Channel is Humble Oil & Refining Company's terminal and refinery at Baytown, near the mouth of the San Jacinto River below Houston. During 1927 the shipments of crude and refined products, mostly refined, aggregated a little over 6,000,000 short tons. According to a recent monthly report, 64 large tankers were loaded during the period.

Following is a list of the plants along the channel operated by oil companies, beginning at the upper end of the channel, as enumerated in the latest copy of the official magazine of the Houston Port Commission.

Houston Terminal Refining Company—Eighty-five-acre tank farm and refinery. Import and export oil terminal, serving the interior producers and refiners. Located on north bank of Channel at Houston.

The Texas Company—Oil and gasoline supply station for small craft.

Humble Oil & Refining Company—Oil station for small craft and vehicles.

Gulf Refining Company—Oil and gasoline supply station for small craft.

Deepwater Oil Refineries—Refiners of lubricants; own barge wharf.

Magnolia Petroleum Company—Crude oil storage and supply station; own barge wharf.

Humble Oil & Refining Company—Fuel oil, gasoline and kerosene distributing station and storage tanks; small craft wharf.

Clarion Oil Company—Storage and shipment of crude oils; ship wharf.

Keen & Woolf Refining Company—Refiners.

Sinclair Refining Company—Refiners and shippers of crude and refined oils. Wharf 1400 feet long, pipe line connection to all Mid-West fields; petroleum coke loading plant.

The Texas Company—Location No. 2, oil storage tank farm; wharf.

Galena Signal Oil Company—Refining and shipment crude and refined oils; pipe line connections to large fields; 400 foot wharf.

Crown Central Oil Corporation—Oil refining and shipping; wharf 400 feet.

Roxana Petroleum Corporation—Has acquired site on channel of 650 acres on which it is proposed to construct refinery and tank farm.

American Petroleum Company—Tank farm and storage; shipment of crude oils; wharf 150 feet.

Gulf Pipe Line Company at Lynchburg ferry—Oil storage and mixing plant; shipment by vessel and pipe line; wharf 400 feet.

Humble Oil & Refining Company—Refinery at Baytown; two concrete wharves 600 and 400 feet long, barge wharf 250 feet.

Sun Oil Company—Oil Storage, pipe line and barge wharf.

E. F. Simms Company—Tank farm and storage, barge and pipe line shipments.

La Porte Oil & Refining Company—Barge wharf.

The Houston Ship Channel has a uniform depth of 30 feet throughout its length. The width is 250 to 300 feet on the bottom from Morgans Point to Turning Basin, and the latter has a diameter of 1100 feet and depth of 30 feet.

At Texas City the Humble Oil & Refining Company has berthing facilities for one ship and loads crude; Marland Oil Company has a terminal and loads crude and refined oils; Vacuum Oil Company has a crude terminal; and the Swiftsure Petroleum Company has a terminal where it loads crude and refined products.

LaBarge

Kemmerer, Wyo. — Texas Production Company plans the immediate drilling of nine wells on the California Petroleum Corporation holdings in the LaBarge field, according to report. All operations on the Calpet properties will now be under the management of the Texas Production Company. There are at present about 30 producing wells in the field.

Pipe Line Capacity to Texas Coast Greatly Increased

(Continued from page 56)

Company. It also provides gas to the Stauffer Chemical Company's Plant at Freeport, and is the final link completing a 134.69 mile loop of 12¾-inch and 16-inch line from Edna to the Ship Channel district of Houston.

In order to take advantage of the gas supply at Whites Point, in San Patricio County, a line of 12¾-inch, 28.66 miles long was laid.

From a point near Alvin, 25.23 miles of 16-inch line was laid to Texas City, to supply gas for industrial and domestic use.

Paralleling the 18-inch main line from the Mount Lucas, or Live Oak County field, to Houston, 7.2 miles of loop was laid east of the compressor station at Mount Lucas, and 11.43 miles east from the crossing of the San Antonio River to Coletto Creek in Goliad and Victoria Counties.

West of the Mount Lucas station, on the Cole-Bruni and Lucas line, 15.7 miles of 12¾-inch loop was laid.

Approximately 18 miles of four, six, and eight-inch field lines were added in the White Point, Mount Lucas, Refugio, Cole-Bruni and Kingsville fields.

Proposed Line

The Texas Pipe Line Company has announced plans to increase its pipe line capacity south of Dallas to Port Arthur, by 10,000 barrels daily, and to accomplish this will proceed with construction of an eight-inch line from Corsicana to San Augustine, a distance of about 115 miles. At San Augustine the line will hook up with the Texas Pipe Line Company's trunk line system from the Arkansas-Louisiana area to Port Arthur. The same announcement stated that the Texas Pipe Line Company also plans to lay a new line from Electra to Gray County in the Panhandle. This line will not be started, however, until the Corsicana-San Augustine project is completed.

Surveys for both lines are being made now, but none of the construction details for either line have been completed.

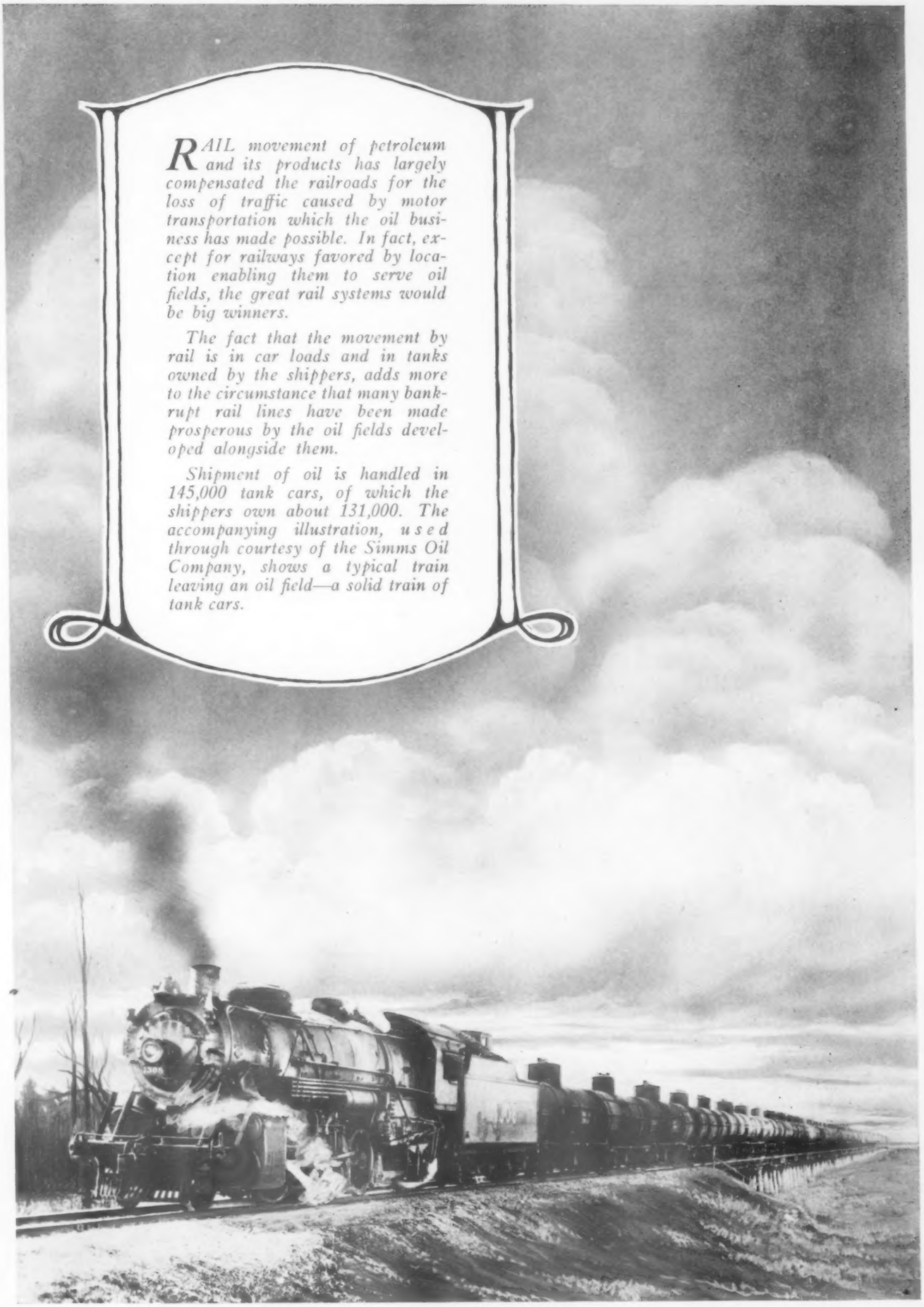
New Company

San Angelo, Texas—The Black Arrow Oil Company has been organized under the laws of Delaware with a capital stock of $1,000,000, to engage in oil producing and lease buying in California and Texas, with offices in the Ricker-Dodson Building, San Angelo, and the Petroleum Securities Building, Los Angeles. The officers of the company are: R. P. Ricker, San Angelo, president; Loren L. Hillman, Los Angeles, Floyd C. Dodson, San Angelo, and Carl T. Long, Los Angeles, vice presidents; W. W. Hubbard, San Angelo, secretary, and J. E. McConnel, Jr., Los Angeles, treasurer. Ricker and Dodson have been drilling wildcats and acquiring leases and royalties in West Texas for a number of years, and Hillman and Long, who were formerly with Standard Oil Company of California, have been doing likewise in California. The new concern is a consolidation of the two partnerships.

RAIL movement of petroleum and its products has largely compensated the railroads for the loss of traffic caused by motor transportation which the oil business has made possible. In fact, except for railways favored by location enabling them to serve oil fields, the great rail systems would be big winners.

The fact that the movement by rail is in car loads and in tanks owned by the shippers, adds more to the circumstance that many bankrupt rail lines have been made prosperous by the oil fields developed alongside them.

Shipment of oil is handled in 145,000 tank cars, of which the shippers own about 131,000. The accompanying illustration, used through courtesy of the Simms Oil Company, shows a typical train leaving an oil field—a solid train of tank cars.



West Texas Tank Car Shipments

Tank car shipments of crude oil during April, 1928, from various West Texas fields to Gulf Coast export terminals and interior refining centers are listed below, showing name of shippers and source of crude by counties:

Shippers—	Winkler	Crane-Upton	Pecos	Jones	Reagan	Fisher	Runnels	Loving	Totals
Roxana Petroleum Corporation	288,600	321,910*	.....	.....	.....	.....	.....	.....	610,510
Southern Pipe Line Company	492,900	21,525	.....	.....	.....	.....	.....	.....	514,425
Independent Oil & Gas Company	348,700	.....	.....	.....	.....	.....	.....	.....	348,700
American Petroleum Company	347,950	.....	.....	.....	.....	.....	.....	.....	347,950
Gulf Production Company	.....	.....	122,075	.....	.....	.....	.....	.....	122,075
Reagan County Purchasing Company	.....	.....	.....	.....	80,775	.....	.....	.....	80,775
Landreth Production Corporation	50,230	.....	.....	.....	.....	.....	.....	.....	50,230
The Texas Company	.....	23,400	.....	.....	.....	3,610	.....	.....	27,010
Phillips Petroleum Company	.....	.....	.....	38,000	.....	.....	.....	.....	38,000
R. H. Paxton, et al	.....	7,800	.....	.....	.....	.....	.....	.....	7,800
Big Lake Oil Company	.....	.....	.....	.....	155,000	.....	.....	.....	155,000
James D. McMahon, et al	.....	.....	11,900	.....	.....	.....	.....	.....	11,900
Humble Oil & Refining Company	.....	35,900	.....	.....	.....	.....	3,195	.....	39,095
Lockhart, et al	.....	.....	.....	.....	.....	.....	.....	3,750	3,750
Totals	1,528,380	410,535	133,975	38,000	235,775	3,610	3,195	3,750	2,357,220

*Includes some Winkler and Pecos crudes.

Much West Texas Oil Moved in Tank Cars

By H. H. KING
Staff Representative

SAN ANGELO, Texas.—Tank car movement of crude oil from the West Texas district to distant refining centers has been closely associated with the oil development since the first field was established in 1920, and this means of transportation has been used to a limited extent almost continuously. Crude production in this district has increased at a greater rate than local refineries and oil trunk lines could absorb since 1925, and tank car shipments have been used on a large scale to create a broader market for the oil.

Crude movement from this district in tank cars reached a new peak during April, with a total of 2,357,220 barrels, with the Hendrick field contributing 1,528,380 barrels of this amount. This high mark will not be equalled for some time, if ever, owing to the enforcement of proration in the Hendrick field to a maximum of 150,000 barrels daily beginning May 5, and also for the reason that two new trunk lines will begin serving the district in June.

More than a score refineries and skimming plants scattered over the country absorbed the April shipments of West Texas crudes in tank cars, and nearly all of these plants received the oil direct, while the remainder moved it to the Gulf Coast in cars, then loaded into tankers for coastwise movement. The Roxana Petroleum Corporation's refinery at East Chicago, Indiana, made its initial run on West Texas oils, and affords the longest rail haul. Roxana's plant in Wood River, Illinois, and Standard Oil Company of Indiana's plants in Illinois, Indiana and Missouri have been receiving large quantities of this oil direct in tank cars for a number of months.

Roxana has been the largest shipper of West Texas crude in tank cars for many months, and during April lead the list with a total of about 610,510 barrels from Winkler, Upton and Pecos Counties. This movement was reduced to a minimum towards the close of April in order to fill Roxana's 1,000,000 barrel concrete crude reservoir at Monahans, Ward County.

Southern Crude Big Shippers

Southern Crude Oil Purchasing Company, which is in control of the largest amount of proven acreage in the Hendrick field through joint operations with the Dixie Oil Company, an affiliated concern, and the R. A. Westbrook Interests, is the second largest shipper of crude in tank cars, and must continue to use this means of transportation indefinitely. Southern is credited with having moved 514,425 barrels of crude during April from fields in Winkler, Crane and Upton Counties; and the bulk of this oil was dispatched to Standard Oil Company of Indiana's plants in Illinois, Indiana and Missouri direct in cars, while shipments were also made to the Louisiana plants of

WEST TEXAS TANK CAR RACKS

Tank car racks in use and those available for the loading of crude in the West Texas district are listed below by counties, showing the owners, car capacity and exact location of each rack:

Rack Owner	Railroad Point	Capacity in Cars	Location
FISHER COUNTY			
The Texas Co.	Royston	5	Sec. 6 W. E. Richardson Sur, Blk. "R"
HOWARD COUNTY			
Marland Pipe Line Co.	Coahoma	10	Sec. 43 Blk. 30, T&P Ry. Sur., T-1-N
JONES COUNTY			
Phillips Petroleum Co.	Trent	10	Sec. 36, Blk. 19, T&P Ry. Survey
MIDLAND COUNTY			
Gulf Petroleum Co.	Midland	50	Sec. 41, Blk. 38, T&P Ry. Survey
Midland Refining Co.	Midland	10	
MITCHELL COUNTY			
Col-Tex Refining Co.	Colorado	30	Sec. 42, Blk. 26, T&P Ry. Survey
REAGAN COUNTY			
Big Lake Oil Co.	Texon	40	Sec. 1, Blk. 2, University Lands
Reagan County Purchasing Co.	Kemper	15	Sec. 11, Blk. 11, University Lands
Texon Oil & Land Co.	Santa Rita*	30	Sec. 36, Blk. 9, University Lands
REEVES COUNTY			
Lockhart Brothers et al	Arno	5	Sec. 38, Blk. 2, H&GN Survey
Skelly Oil Co.	Pecos	30	Sec. 68, Blk. 4, H&GN Ry. Survey
RUNNELS COUNTY			
Humble Pipe Line Co.	Benoit	10	Sec. 161, ET Ry. Co. Survey
UPTON COUNTY			
Gulf Production Co.	Hurdle	50	Sec. 2, GC&SF Ry. Survey
Humble Oil & Refining Co.	McCamey	50	Sec. 65, Blk. 35, H&TC Ry. Survey
Humble Pipe Line Co.	McCamey	50	Sec. 65, Blk. 35, H&TC Ry. Survey
Marland Pipe Line Co.	McCamey	40	Sec. 66, Blk. 35, H&TC Ry. Survey
Mid-Kansas Oil & Gas Co.	Hurdle	30	Sec. 19, Blk. 1, MK&T Ry. Survey
Orient Oil Operating Co.	Hurdle	5	Sec. 3, GC&SF Ry. Survey
Roxana Petroleum Corp.	McCamey	50	Sec. 12, TC Ry. Survey
Southern Pipe Line Co.	McCamey	72	Sec. 65, Blk. 35, H&TC Ry. Survey
WARD COUNTY			
The Texas Co.	McCamey	30	Sec. 66, Blk. 35, H&TC Ry. Survey
American Petroleum Co.	Pyote	50	Sec. 81, Blk. "F," GMMB&A Survey
Blue Bonnett O. & R. Co.	Wickett	35	Sec. 21, Blk. "F," GMMB&A Survey
Humble Pipe Line Co.	Monahans	40	Sec. 61, Blk. "A," GMMB&A Survey
Independent Oil & Gas Co.	Pyote	79	Sec. 60, Blk. "F," GMMB&A Survey
Landreth Production Corp.	Monahans	40	Sec. 80, Blk. "A," GMMB&A Survey
Roxana Petroleum Corp.	Monahans	60	Sec. 41, Blk. "A," GMMB&A Survey
Southern Pipe Line Co.	Wickett	72	Sec. 20, Blk. "F," GMMB&A Survey
Texon Oil & Land Co.	Pyote	34	Sec. 100, Blk. "F," GMMB&A Survey

*Moved to Pyote.

West Texas Freight Rates

DOMESTIC

Domestic freight rates applying on crude oil shipped in tank cars from the principal loading points in the West Texas district to interior and Gulf Coast refining centers are shown in cents per 100 pounds:

To — From	Hurdle	McCamey	Texon	Marland (Formerly Kemper)	Pyote	Wickett	Monahans	Coahoma	Trent
Dallas, Texas	23	23	23	22½	23	23	22½	20½	17½
Fort Worth, Texas	23	23	16	16	17	17	17	14½	10
Galveston, Texas	27½	27½	26½	26½	26½	26½	26½	24	24
Houston, Texas	21½	21½	21½	21½	26½	26½	26½	24	24
Baytown, Texas	27½	21½	26½	26½	26½	26½	26½	24	24
Beaumont, Texas	21½	21½	21½	21½	26½	26½	26½	24	24
Port Arthur, Texas	21½	21½	21½	21½	26½	26½	26½	24	24
El Paso, Texas	20	20	20	20	19	19	19½	22	25½
San Angelo, Texas	10	10	9	9	21	20½	20½	17½	15½
Texas City, Texas	27½	27½	26½	26½	26½	26½	26½	24	24
Shreveport, La.	27½	21½	26½	26½	20	20	20	20	17
Destrehan, La.	35½	35½	29	29	35	35	35	35	29
New Orleans, La.	37	37	30½	30½	24	24	24	24	24
Sugar Creek, Mo.	33½	33½	27	27	29	29	29	29	27
Whiting, Indiana	36½	36½	35	35	37	37	37	37	35
East Chicago, Indiana	36½	36½	35	35	37	37	37	37	35
Wood River, Ill.	30½	30½	29	29	31	31	31	31	29
Wichita Falls Texas	..	..	..	..	20	20	..	..	..

Export

Export freight rates applying on crude oil shipped in tank cars from the principal shipping points in the West Texas district to Gulf Coast terminals are shown below in cents per 100 pounds:

To — From	McCamey	Texon Marland	Pyote Wickett	Midland	Coahoma	Iatan	Colorado	Monahans
Galveston, Texas	18	17	20	20	20	20	20	20
Hoston, Texas	18	17	20	20	20	20	20	20
Texas City, Texas	18	17	20	20	20	20	20	20
Baytown, Texas	18	†	†	†	†	†	27	†
Beaumont, Texas	*18	†	†	†	21½	21½	21½	†
Atreco Texas	*18	†	†	†	21½	21½	21½	†
Port Arthur, Texas	*18	†	†	†	21½	21½	21½	†
New Orleans, La.	31	31	†	†	†	†	27	†
Destrehan, La.	31	31	†	†	†	†	27	†

*Effective December 24, 1927. †No export rate.

Chalmette Petroleum Corporation, Liberty Oil Company, Ltd. and the Mexican Petroleum Corporation. However, crude shipments to the latter concern are sent to Galveston and loaded into barges for water movement to the Destrehan plant.

The Southern Crude Interests have proposed the construction of a direct trunk line system from Winkler County via the McCamey district to the Gulf Coast on several occasions within the past 18 months, but nothing has been accomplished beyond preparing cost estimates and the selection of a tentative route. Continued postponing of this project reduces the possibilities of it being carried out, unless the Southern Interests participate in some future flush field, since its allowable production under the present proration arrangement in the Hendrick field offers little encouragement for the construction of a direct line to tidewater, while the bulk of its market outlet is now with the Standard of Indiana's plants in the Middlewest.

Independent Oil & Gas Company is credited with having shipped 348,700 barrels of Hendrick field crude via tank cars during April, and the bulk of this went to refineries in Louisiana on contract. Independent has an eight-inch line leading from the Hendrick field to rack at Pyote, and is also handling 10,000 barrels of crude daily for Southern on a common carrier basis. American Peteroleum Company, which is serving as crude buyer and transporter of oil for the Republic Production Company in the Hendrick field, shipped approximately 347,950 barrels of crude in tank cars during April. This concern has a contract to deliver the Louisiana Oil Refining Corporation 7500 barrels daily over the balance of 1928 in tank cars to the latter's plant near Shreveport, and is making the balance of its deliveries to plants in Texas.

Gulf Production Company is listed as a shipper of West Texas crude in tank cars, even though the Gulf Pipe Line Company has a ten-inch line out of the district, but the rail movement of crude is restricted to a contract made late last November with Sinclair Refining Company of Louisiana. Yates field crude is involved in this contract, and Gulf loads same in buyer's cars at Hurdle rack, with Meraux, Louisiana, as the destination.

Tank car movement of crude from the Noodle Creek field, Jones County, is soon to be discontinued as the Humble Pipe Line Company has started work on a six-inch lateral line from its Panhandle-Comyn 10-inch trunk line. Heretofore, the oil produced in this field has been purchased by independent refineries.

The Texas & Pacific Railroad has borne the brunt of the heavy tank car traffic originating from the Hendrick field, and has expended large sums of money in double tracking and improving its main line system between Pyote and Fort Worth to cope with the situation. This line will sustain a sharp reduction in crude movement with the proration in effect in the Hendrick field, and also by the loss of the bulk of Roxana's business as result of the completion of the Shell Pipe Line Company's trunk line next month.

Plan Four More Wells on Spindletop Structure

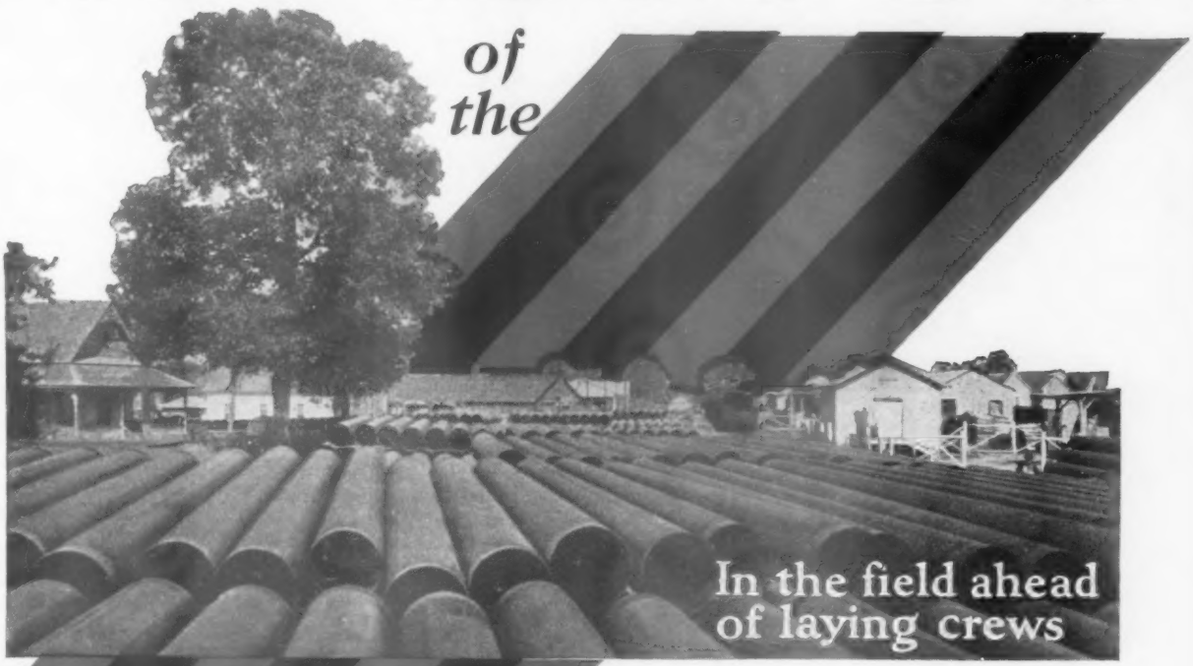
Casper, Wyo.—The third well on Spindletop structure, 30 miles southwest of Casper, has been spudded in on the northwest of section 5-29-81; it is expected that it will be on production before next week-end. Company has let contract for the drilling of three more wells on the structure.

Spindletop Syndicate has purchased three 1000-barrel vapor pressure steel storage tanks from Black, Sivalls & Bryson, Inc., of which W. H. Price of Casper is district manager. The work of erecting the first tank has already started.

As soon as the third well is completed the power will be installed and the three wells will be put on the pump. The syndicate contracted early this month for the sale of 10,000 barrels of the oil and in the last week made a supplemental contract for 15,000 barrels additional. The oil will be marketed through the Kinney-Coastal's pipe line from Bolton Creek.

CAPACITY

of the



A. O. SMITH
CORPORATION
Pipe Mill

has been INCREASED from 4½ to

6 *to* 8 Miles Per Day

according to diameter—

16 to 24 Inch

SMITHSTEEL
GAS LINE PIPE

A. O. SMITH CORPORATION
Oil & Gas Field Products Division
General Offices—Milwaukee, Wis.

District Offices at New York City, Pittsburgh, Tulsa, Houston, Los Angeles

Say you saw it in The OIL WEEKLY

Development of Tank Cars

By R. H. COBB
Columbian Gasoline Corporation

KEEPING up with the development of the petroleum industry has been the evolution of the manufacturing of tank cars. From crude tub-like affairs, petroleum transportation equipment has been molded and remolded into modern tank cars.

The change from the old type tank car to the new tank car might not be considered remarkable, but to those who know tank car construction, the evolution has been pronounced. The old, crudely constructed tub on railroad car trucks was put together only as a makeshift to haul crude oil from the wells to the refineries. The modern tank car has been designed to embody safety to those handling it, economy in transportation and convenience in long distance movement.

Expansion of the petroleum industry since the coming of the internal combustion engine has brought about a change and increase in the use of tank cars. At the beginning of the oil business possibly only crude oil had to be transported by way of railroad. As the demand for refined products has grown by leaps and bounds, so has the need of tank cars, and better equipment.

Insulated Tanks

And yet the evolution is not complete. When the first insulated cars were designed a short time back, the oil industry thought the end had been reached. But the class IV in service today are very much different from the original insulated carriers. Designed to hold evaporation of highly volatile products to a minimum, and assure the utmost safety to those handling the equipment, there are 8000 insulated class IV tank cars in service today transporting natural gasoline. The general principle of class IV tank cars is the same as the first insulated tank cars having the standard car tank within insulation with No. 2 hair felt and ⅛-inch steel outer jacket, but the accessories are entirely different. A special fool-proof dome cover is in use today on cars built by the General American Tank Car Corporation. This cover cannot be removed as long as internal pressure is exerted and cannot be turned until the pressure has been relieved. Many improvements have been made in the jackets so far as fit and water tightness are concerned, these features are of great importance to insulated tank cars because if the cars are not fitted correctly the dampness attacks the hairfelt which would deteriorate very rapidly.

The tank cars built today are of heavier construction so they will stand up in service. Heavier freight of greater capacity are being used. The class IV tank cars must be built to stand the abuse in service.

Value of Insulation

The insulated tank car, originally built for casinghead gasoline, is gradually coming into use for other commodities. The loss in evaporation is proved to a small figure causing a great saving to shippers and railroad carrier. The experiences in shipping casinghead which is highly volatile are being put into practice more in designing better tank cars for other products.

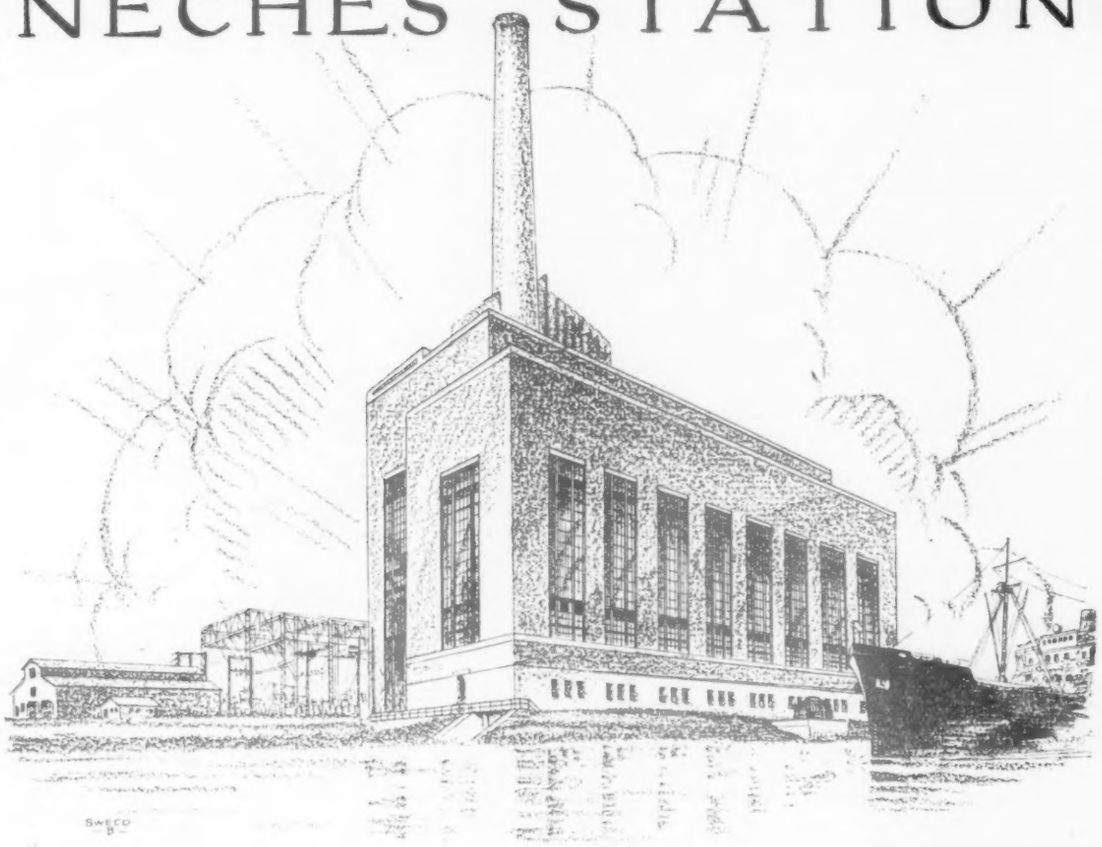
The first tank car built was nothing more than a flat car constructed to haul 12 five-barrel containers of petroleum. The only thing that distinguished a tank car from an ordinary flat car was that it was built so the 12 containers would fit snugly and had straps holding the containers on the car. The container could be lifted from the cars by derricks, put into wagons and be refilled at the wells and then put back on the cars.

Between this type and the second type tank car was considered quite a jump. The second car was somewhat like the tank car of today. However, this design was very crude. It was nothing more than a long wooden barrel. In building this car no thought was taken of evaporation. In fact, it was hardly necessary

(Continued on page 109)

Photo—Courtesy American Car & Foundry Company.

NECHES STATION



MORE ELECTRIC POWER FOR THE OIL INDUSTRY

The second unit at Neches Station will soon be placed in operation. The station—one of the largest in Texas — will then produce approximately 80,000 horsepower. This will be distributed, of course, to many places and for many purposes, but most of it will go to the oil industry—fields, pipe lines, refineries—in southeast Texas and southwest Louisiana. The transmission lines that carry electric power to three score producing companies in fifteen fields, radiate from this central source of a power system that includes five generating stations and __ miles of high-voltage transmission lines.

LOW FIRST COST
LOW MAINTENANCE
FLEXIBLE
DEPENDABLE
ECONOMICAL

We invite you to call upon our petroleum specialists for any assistance in the application of electric power to any phase of the petroleum industry.

Gulf States Utilities Co.-Western Public Service Co.

Under Executive Management of STONE & WEBSTER, INC.

General Offices: BEAUMONT, TEXAS

Salvage Department Reclaims Used Material at Profit

California Petroleum Corporation has central clearing house for handling items which are worn out or temporarily out of use

By BRAD MILLS
Staff Representative

THROUGH a salvage department, the California Petroleum Corporation has solved the problem of handling huge quantities of surplus, obsolete and worn oil field equipment. The department is located near the Santa Fe Springs field and occupies six acres lying along the Santa Fe Railway. The location formerly was a refinery site but proved to be an ideal plot after considerable work.

The salvage department was originally organized to centralize the company's surplus material and equipment as well as to make necessary repairs to valves, pumps, pipe, etc. It acts as a warehouse for certain overstocked items and as a repair department for others.

The main warehouse building is 40 by 420 feet and is equipped with overhead electric traveling cranes. Only a small part of the equipment is stored in the building, however. Small fittings and materials damaged by exposure are under cover. Several small shops have been built to house the equipment used for repairing equipment.

The equipment includes pipe straightening and threading machines, a special machine for breaking connections of all sorts, an Oakite tank for cleaning all material before it is repaired or disassembled, special valve repairing tools and a hydraulic outfit for testing valves under pressure. A hydraulic machine with a special wooden shoe is used for straightening pipe and tubing.

The department handles large quantities of valves. When brought in from the field, they are cleaned, the seats and discs refaced, parts replaced where needed, repacked, painted and tested against pressures required of a new valve.

Enormous quantities of pipe, casing and tubing are received from the various fields of the State. It is all closely examined and cleaned, straightened, re-threaded and scarfed for welding if necessary. Much of the casing received is in first class condition, however, and is handled merely as surplus stock. The trucks unload the pipe on one side of a huge platform. It goes through the various processes and rolls out on the other side ready for the racks. A long line of cranes will care for two joints at a time when it has been pulled from the well in this way.

Light Equipment

The extremely heavy rotary equipment used in the deep fields of California, particularly at Long Beach, has greatly increased the stock of lighter equipment not particularly adapted to depths greater than 5000 feet. Boilers that are slightly out of date or are not adapted to pressures commonly used with the heaviest rotaries have been collected and stocked in the salvage department. Complete rotary outfits are also carried in stock. Cable tools, now used very little in California, are collected and placed in the department, either for future use or to be sold to operators requiring such equipment. In many respects, the department resembles a warehouse more than a repair department.

The pipe and casing in stock varies from strictly first grade to that suitable for other needs, such as irrigating pipe, fence posts and re-enforcing material. Increased drilling depths have been responsible for a large stock of slightly used casing which is considered too light for use in 6000-foot holes. Some of the casing is not uniform in length after cutting and rethreading.

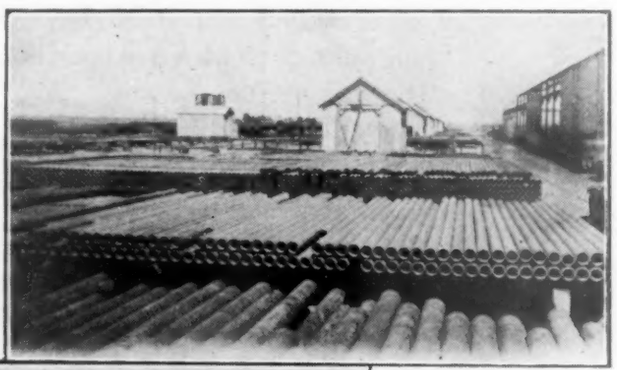
Slush pumps and drilling engines have been accumulated until practically all surplus stocks and obsolete items from the company's lease in all parts of the State have been centralized in the salvage department.

Many interesting items have been accumulated from the company's vast operations. Recently a mess hall was closed down and all utensils sent to the salvage department. Radio batteries from tankers have been stored until needed or disposed of.

The company has been very successful in using the salvage department as a clearing house for surplus supplies. It has found that it is much more practical to centralize all equipment not needed than to attempt to dispose of it here and there or carry it on the books in broken lots. Enormous quantities of equipment have been sold to operators not requiring new or strictly up to date supplies.

When equipment is brought to the salvage department, the lease is credited and the department charged with the various items. The cost of repairing the material is charged against the department. About 20 men are regularly employed.

The California Petroleum Corporation has maintained its salvage department for more than a year and is convinced that the centralization of all obsolete, worn or surplus stocks is a sensible idea.

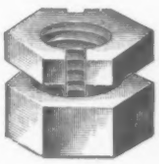


Views of California Petroleum Company's Salvage Department. Above is used pipe ready for new service, and below, an assortment of valves brought in for reclaiming.

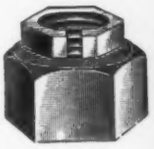
DEPENDABILITY!
—For You Too, Mr. Oil Man!

This Lock Nut has been tried and proven. Since 1900 this company has been making nuts for the railway field. No harder test could be given them—they are now standard with many companies—your tank cars from the American Car & Foundry Co. are equipped with them.

Columbia Lock Nuts

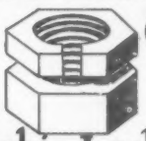


take a grip that cannot slip



Think of the significance of the above statement—it is not an idle claim but a fact we will be glad to prove. Does hard usage or high winds scare you when you are on the derrick floor? Need not if fitted with Columbia Lock Nuts—because these Nuts are strong and will stand firm. Next time you make out a requisition for nuts specify Columbia. They have given satisfaction to many field superintendents.

Columbia Devices to Keep Cars Moving



Columbia Lock Nut

Columbia Gib Nut

Columbia Castle Nut

Try them on your Lift Jacks and Spudders.

Samples Furnished.

JOBBERS—*Write for Information*

We have an attractive proposition for distributors. Send for full details. This profitable and satisfactory line will help you to better please your customers.

Columbia Nut & Bolt Company, Inc.
Bridgeport, Conn.

Waste, always regrettable, becomes doubly so when the commodity is irreplaceable. Underground waste is reduced to the minimum in Halliburton-cemented fields.

HALLIBURTON
OIL WELL CEMENTING COMPANY
DUNCAN, OKLAHOMA

Say you saw it in The OIL WEEKLY

A Pure Oil Truck Train in Seminole District.

Efficiency in Handling Motor Transport Problems

By WALLACE DAVIS
Staff Representative

THE motor transport division of Pure Oil Company in the Mid-Continent, headquarters at Tulsa, has a system of handling company cars and trucks that is well worth passing along to other organizations as an example. The records kept by the division on every car and truck shows that repair profits in every detail are kept within the company.

The Pure Oil Company's system of caring for motor vehicles might be divided into two classes: Prevention and correction. Such a working method is common in many of the other major companies, but the unique arrangement of this concern's motor transport division will serve as a fine illustration.

As a basis for the best results possible the division maintains a base garage and shop in Tulsa, which is division headquarters, being the center geographically of the company's operations in this territory. Working under the headquarters office are seven branch garages, located at Seminole, Okmulgee, Oilton, Healton and Hominy, Oklahoma; Augusta, Kansas, and at Northrup, Arkansas. There are 30 men in the Mid-Continent division, all of whom work under and report to A. P. Robertson, superintendent of the motor transport division in the Southwest. Mr. Robertson, in turn reports to Leo Huff, general manager of the division, with headquarters in Chicago.

There are 320 cars and trucks maintained by the company in the Southwestern division, all of which are handled indirectly by the base garage at Tulsa. The work is arranged so that each man can handle as many as 20 cars.

Preventing Trouble

Under prevention comes the work of inspection of cars and trucks, which are cared for directly in their respective districts. Each company car or truck is driven to its district garage once each month for a complete inspection. Minor details are checked so as to catch any possible near damage. This inspection includes such work as tightening of bolts, checking of battery and tires, steering gear, wheels, and a general checking of the working parts of the motor. Reports are made on each car and truck in all of the various districts, and the branch garages send these reports to the base garage for recording.

A report on individual car mileage is sent to the base office, a report on gasoline and oil consumed, and whether or not the fuel was company products or otherwise. Furthermore, an individual car report is sent in on the number of days in operation. When a new tire is purchased, a mileage record is started for it in the branch garage, and this mileage is checked at the time the tire is replaced. If the report shows the tire failed to give satisfactory service, then it is taken up at the headquarters office, where the purchase was made, and an adjustment is secured.

When a company car or truck is inspected and found to need repairing the man to whom it is assigned turns it in, takes a relief car or truck until his has undergone the necessary repairs.

Correcting Trouble

As to the repairing facilities of the Pure Oil Company's motor transport division, they include practically everything but making the parts, and in some cases this is done. There are facilities for rebuilding motors, making new batteries from old hulls, making bit racks and truck bodies and putting on varnish and Duco finish jobs.

When inspetion shows that a car or truck needs rebuilding it is taken out of service and to the district garage. The branch garages are maintained because of the expense of moving every job into Tulsa. The rundown car or truck is dismantled, overhauled and re-assembled as it would be done at the factory. The division maintains a running-in machine, which breaks in motors

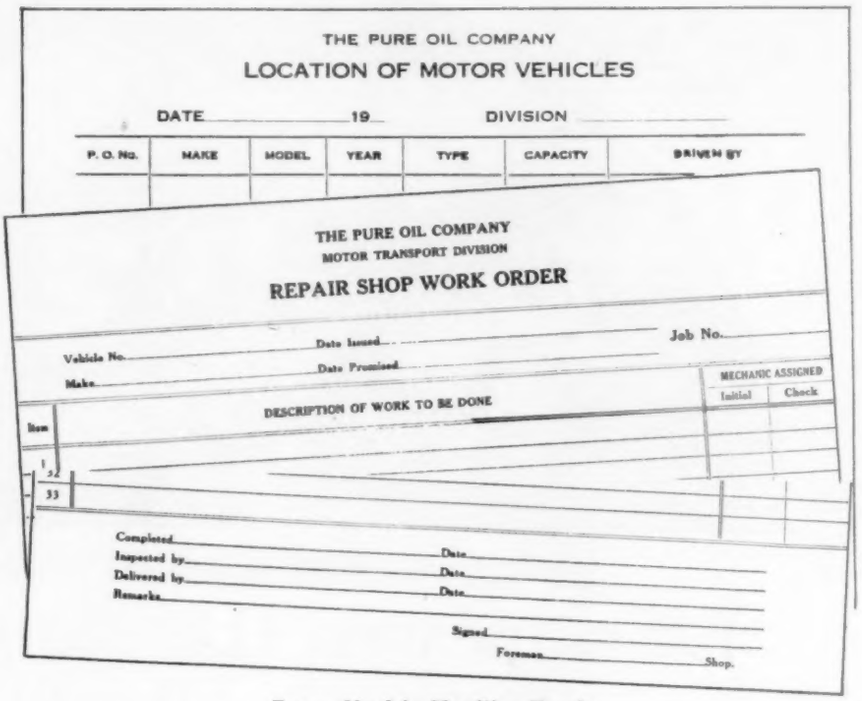
Headquarters Shop.

after they are rebuilt. Each rebuilt motor is run three days at a rate equal to approximately 15 miles an hour. Then, on the return of the car or truck to the field, the motor is ready for full duty.

The base garage at Tulsa is a brick building 70x160 feet, with concrete flooring and steel framework. An overhead track carrying four chain hoists is had for overhauling jobs. There is a work bench 90 feet long, which is equipped with an electrically driven lathe, forge and hack saw. Incidentally, every department in the garage is equipped with a separate electric motor.

The company makes its own batteries. Nothing is bought for this except the boxes, separators and plates. All lead is poured and moulded. The garage is equipped with a charging stand for charging both old and new batteries. Three sizes of batteries are made, these three covering all of the cars used by the company. The battery department is capable of turning out one battery per hour.

A department is maintained for washing, cleaning and putting new finish on cars and trucks. An Oakite cleaning system of spraying is employed to remove old paint and rust. Then the cars are moved on to receive a Duco finish and the trucks receive a varnish finish.



THE PURE OIL COMPANY

LOCATION OF MOTOR VEHICLES

DATE _____ 19__ DIVISION _____

P. O. No.	MAKE	MODEL	YEAR	TYPE	CAPACITY	DRIVEN BY

THE PURE OIL COMPANY

MOTOR TRANSPORT DIVISION

REPAIR SHOP WORK ORDER

Vehicle No. _____ Date Issued _____ Job No. _____

Make _____ Date Promised _____

Item	DESCRIPTION OF WORK TO BE DONE	MECHANIC ASSIGNED Initial	Check
1			
2			
33			

Completed _____ Date _____

Inspected by _____ Date _____

Delivered by _____ Date _____

Remarks _____

Signed _____

Foreman _____ Shop.

Forms Used in Handling Trucks.

The garage also has its own greasing system, using a Graco outfit capable of running 6000 pounds pressure. It is used in connection with the Lift-A-Kar portable lifting machine, the latter being used in greasing, adjusting wheel bearings, relining brakes, draining crank cases and general inspection jobs. Every car or truck is washed before it goes to the mechanic for repairs.

A complete stock room is maintained in the garage, handling all parts necessary for the cars used by the company. Due to the thorough knowledge had at all times on the cars and trucks by regular inspection, the division is able to keep the stock of parts at a minimum and yet not be without certain parts in case of demand.

Records Kept

The complete records kept by this motor transport division is one of its big assets. R. M. Taylor, assistant to the division superintendent, has charge of these records. By referring to his files he can pick out each car and truck individually in the Mid-Continent territory, get the name of the driver, the car number, engine number, make of car, model, type, license number, date purchased and the occupation of the driver. Further, he knows all of the districts this car has been in previously, and where it is at this particular time. A blueprint made up in the headquarters office each quarter from reports sent in from branch garages gives him this information, with any important remarks about the car or truck. Besides this information source he has a card index listing every car and truck; the latter for quick reference. He has at hand the amount spent on each car and truck even in itemized form, such as fuel, tires and tubes, and repairs, divided into labor and parts.

When a car or truck is bought the re-

343-M—20M—1-19-27—Pads of 50—T-K

THE PURE OIL COMPANY

Motor Transport Division

MOTOR VEHICLE INSPECTION REPORT

No. of Vehicle [ ]

Grades: A. Good; B. Fair; C. Poor; D. Bad. Leave items out applying blank. R. M. indicates repairs made. Put check in this column where repairs are made. Use reverse side for remarks.

Make	Date	Report No.
Division	Location	Driver's Name
Odometer Reading	Engine No.	Chassis No.
Gen. Cond. Mech.	Paint Cond.	Body Cond.

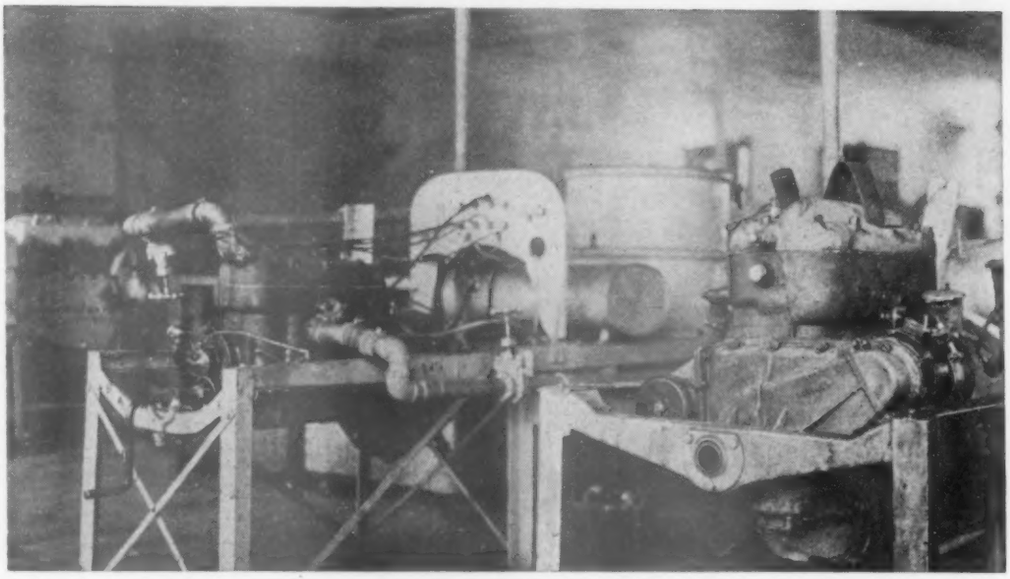
Condition of	Grade	RM	Condition of	Grade	RM	Condition of	Grade	RM
Engine			Rear Axle			Springs		
Oil Level			Oil Level			Front		
Starting Crank			Housing			Rear		
Governor			Gears			Shackles		
Governor Rods			Shafts			Shackle Bolts & Bush'gs		
Cylinders			Bearings			Lubrication		
Crankshaft			Torque Arm			Clips		
Main Bearings			Radius Rods			Frame		
Connecting Rods			Sprockets			Sub-Frame		
Conn. Rod Bearings			No. of Teeth—Small			Fenders		
Camshaft			No. of Teeth—Large			Front		
Camshaft Bearings			Drive Chains			Rear		
Timing Gears			Lubrication			Running Boards		
Valves			Brakes			Right		
Valve Tappets			Service			Left		
Pistons			Emergency			Storage Battery		
Piston Rings			Service Adjustment			Water Level		
Ignition			Emer. Adjustment			Battery Box		
Timing			Front Axle			Lighting System		
Timer			Alignment			Headlights		
Magneto			Radius Rod			Brackets		
Coil			Knuckles			Wiring		
Spark Plugs			King Pins & Bushings			Terminals		
Ignition Wiring			Lubrication			Lenses		
Switch			Steering Gear			Tail Light		
Carburetor			Adjustment			Bracket		
Adjustment			Lubrication			Wiring		
Fuel Tank			Drag Link			Terminal		
Vacuum Tank			Adjustment			Equipment		
Primer			Lubrication			Fire Extinguisher		
Choker			Tie Rod			Skid Chains		
Starter			Adjustment			Tools		
Generator			Lubrication			Mirrormcpe		
Electric Wiring			Wheels			Warning Signal		
Ammeter			Bearings—Front			Shock Absorbers		
Radiator			Adjustment			Odometer		
Radiator Hose			Lubrication			Speedometer		
Water Pump			Bearings—Rear			Power Air Pump		
Fan			Adjustment			Front Bumper		
Fan Belt			Lubrication			Rear Bumper		
Oil Pump			Rims			Licenses		
Muffler			Rim Lugs			License Brackets		
Transmission			Tires			Body		
Oil Level			Front Right			Bolts		
Gears			Front Left			Upholstery		
Clutch			Rear Right			Top		
Adjustment			Rear Left			Curtains		
Lubrication			Spare			Windshield		
Drive Line			Air Pressure			Stake Body		
Universals			Type—Solid			Tank Body		
Lubrication			Pneumatic			Faucets		
			Cushion			Faucet Markers		

Signed _____ Insp. Mechanic.

Inspection Report Form.

quest first comes from the superintendent in the field. It goes to the general superintendent for approval, and thence to the assistant to the vice president, then to the motor transport division. There the most logical car for this particular need is decided on, and then the purchasing department gets the requisition. When the car or truck is bought it is delivered to the motor transport division for servicing and for any special equipment necessary for its duty. There a complete record of the car is taken, including the make, size and serial numbers of all of the tires. This information goes onto the blueprint, and the car is ready for the field. From the time it leaves the headquarters garage a speedometer reading is taken at the beginning and end of each month. A report is also made of the number of days the car is idle.

Books of instruction made by the general superintendent and division superintendent are issued to every man employed in the motor transport division branch garages. This instruction includes mechanical training and points on company policy.



Close-up view of running-in machine for breaking in reconditioned motors for hard field use.

Development of Tank Cars

(Continued from page 102)

at that time, for most use of the car was confined to crude oil. Fire hazards also were very great and the life of the wooden tank cars were short.

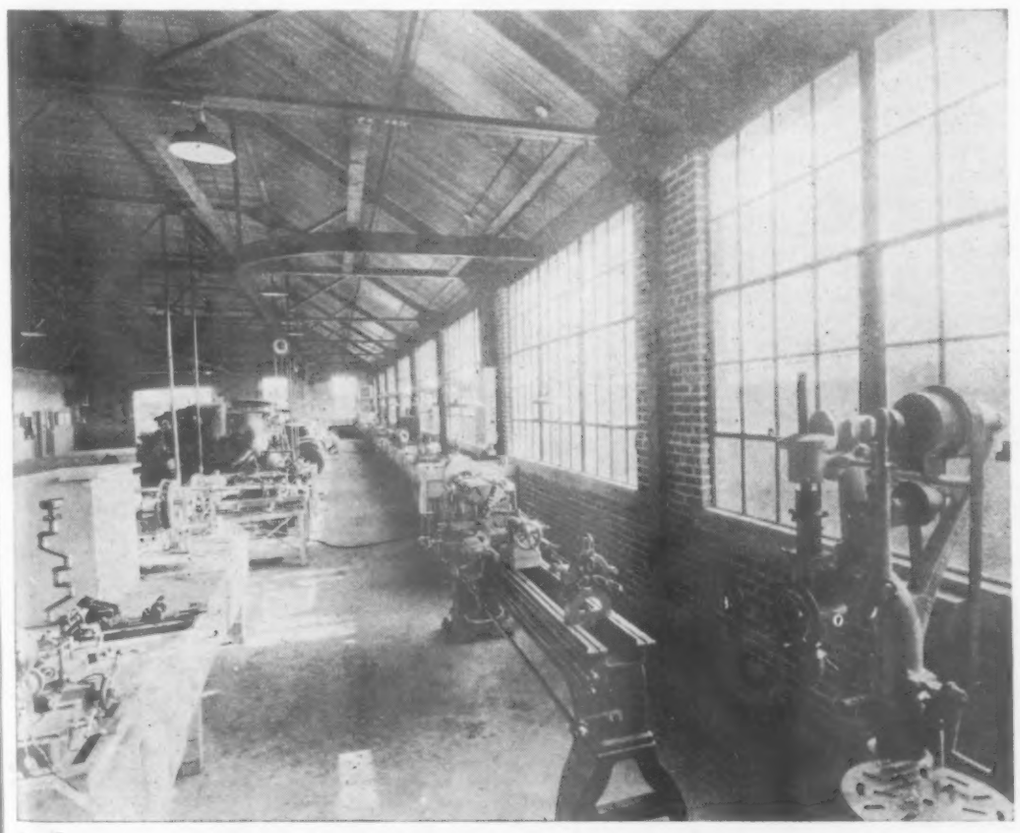
Simplicity itself was demonstrated in what is considered the next definite step in the development of the tank cars. This simple car was nothing more than a metal lined box with a valve in the end of the car to draw off the load. The car was oblong but it answered all the needs of the oil industry at that time. Gasoline and other refined products were hauled in the cars at a great loss as the results of the enormous evaporation.

All of this time manufacturers of cars were striving to get as useful a car as possible and save space, time and money. Combination cars were considered and put into service. This car was nothing more than a box car with an oil tank reservoir under the floor and between the trucks. The design was not successful.

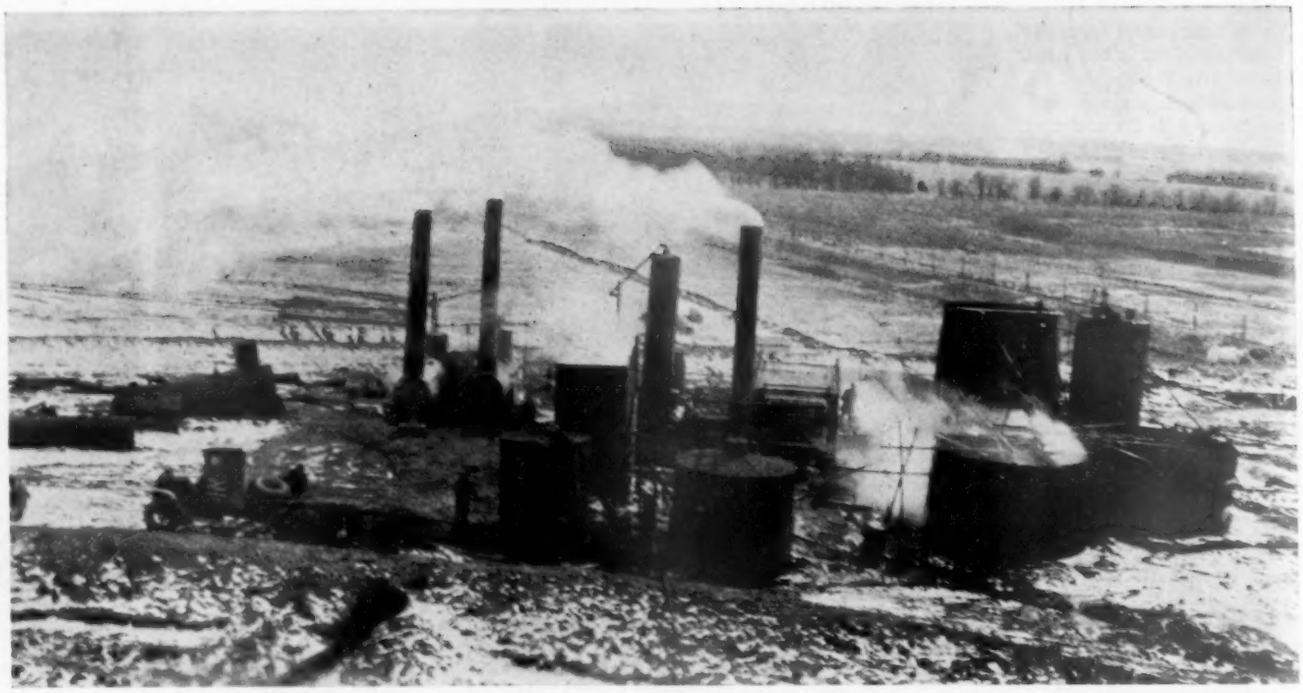
With tank cars now multiplying rapidly the necessity of closer supervision of their design became evident. There was virtually no standard previous to 1903. If the running gear passed inspection it was presumed the tank must be all right. The M. C. B. Association adopted new and more particular rules which continued with only minor changes until 1916.

The development of the casinghead industry perhaps is causing one of the greatest changes in tank car construction and spurring builders to design a more perfect car. The casinghead business has developed the insulated tank car. This is virtually a double tank with the inner tank of heavier construction wrapped in the best insulated material obtainable and surrounded by a steel tank of lighter material all very carefully built and made weather proof. This car has cut the evaporation losses down very low.

What the future holds in store for tank car construction is a matter of speculation as tank car builders and engineers continually are working on and planning new and better models to meet the growing needs of the petroleum industry.



Inside view of Pure Oil Company's base garage at Tulsa.



Old Tank Bottoms Still Have Value

By WALLACE DAVIS
Staff Representative

C. R. EDGECOMB and J. C. Scanlon, independent operators of El Dorado, Kansas, are getting a recovery in fuel oil and naptha of approximately 50 per cent from tank bottoms which have been accumulating in steel storage and earthern ponds for the past 15 years. Their plant, located six miles southwest of El Dorado on the Oklahoma Pipe Line Company's Loomis tank farm in the Towanda field, started operations late in February of this year following a deal with Carter Oil Company to take over the supply of "bottoms" amounting to nearly a half million barrels.

The process used in handling this basic sediment and settled oil accumulation is purely one of refining. The success thus far in the project represents two points of value: Ridding storage of what has been generally considered an objectionable product, and, doing it at a profit. The operators have storage available amounting to 110,000 barrels plus facilities for transporting their finished product to market.

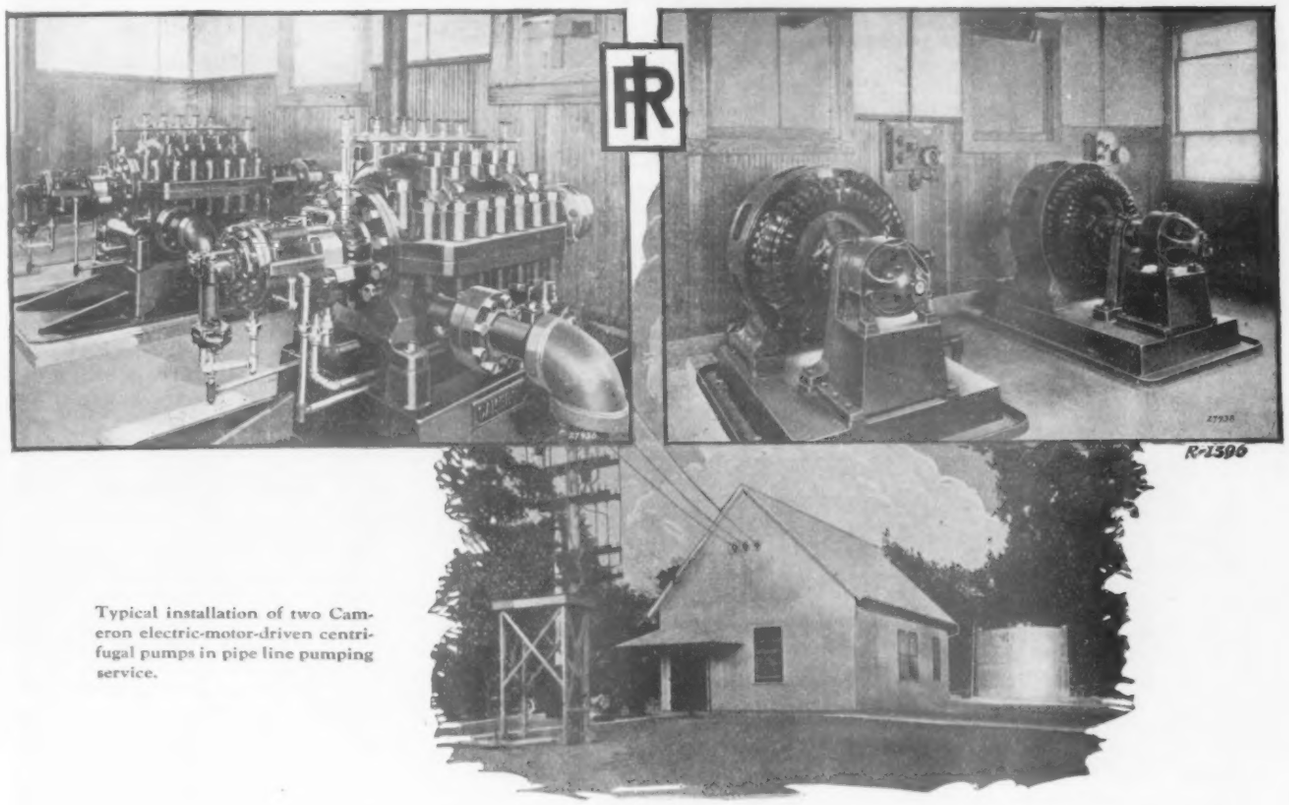
The initial work was that of handling about 3000 barrels of "bottoms" settled in a thick layer on the ground. This completed, the source of supply was a nearby 55,000-barrel steel tank, which is to be used for storage after being cleaned. Following this, the supply is to come from about 40 steel tanks of 55,000 barrels capacity. Settlings will later be taken from five large earthern ponds, where the supply ranges from eight to 10 feet deep. The accumulation in the steel tanks ranges from one to 20 feet in thickness.

One three-inch tubular still is now running 1200 barrels daily, and a second still of the same type and size, which is now contemplated, is expected to increase daily runs to 2500 barrels, more than double the present single still capacity, inasmuch as the present temperature will not have to be maintained with the addition of the second unit.

The task of handling the tank bottoms might be conceived by the fact that at 80 degrees the mass will hold the average man's weight without giving. The finished fuel product congeals at 80 degrees and can be flowed at 100 degrees.

Above is the original 1200-barrel plant for extracting fuel oil and naphtha from tank bottoms. The men in the lower picture are C. R. Edgecomb and J. C. Scanlon, who are owners of the plant.

In moving the b. s. the operators are using a three-inch flow line with a two-inch steam line laid in the same ditch.



Typical installation of two Cameron electric-motor-driven centrifugal pumps in pipe line pumping service.

A complete centrifugal pump unit for pipe line operation

A SMALL building houses the entire plant — two Cameron electric-motor-driven Centrifugal Pumps, one of which handles the full load while the other stands by as a reserve unit.

As large storage tanks are unnecessary in this method of pipe line operation, a small tank is sufficient to provide for any emergency.

Such a pumping plant can be erected easily, the pumps installed, and placed in operation quickly.

Cameron centrifugal pipe line pumps cost less to install and to maintain, and show marked operating economies over most other types of pumping plant used for the same service.

INGERSOLL-RAND COMPANY, 11 BROADWAY, NEW YORK CITY

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Ingersoll-Rand

A. S. Cameron Steam Pump Works

Say you saw it in The OIL WEEKLY

both of which run from the pick-up point to the supply tank. A 10x4½x10 Worthington pump is used in picking up the accumulation and moving it to the still. Due to the heat applied by the steam line, the b. s. is 40 degrees hotter on reaching the plant than when leaving the pit. From the still the fluid is moved by a 6x4x6 Worthington hot oil balanced valve pump. The emulsion is broken up with the steam and by the circulation.

There is no steam loss in the process. After running the pumps, the steam goes through the exhaust into the tank for heating the emulsion as it is transferred to the plant. In the tank the steam condenses, thus keeping the tank full of hot water. It is there separated and run back through the boiler.

The operation is steady rather than in batches. It is being heated as high as 650 degrees, according to the nature of the various layers of emulsion. A pressure of around 30 pounds is being maintained through the still, while the steam pressure in the heating line is held at from 75 to 125 pounds, depending on the requirements for moving the "bottoms".

From the still the hot oil moves into a 3x28-foot vaporizer where light oil and water vapor is separated from the fuel product. Fuel oil runs then to storage and the residium, of which there is almost a negligible quantity, is trapped while the vapors are conducted to the condenser. Water and the naptha moves into a gaso-water separator, from which the water is bled from the bottom as a soft, pure water for boiler and condenser water. The light oil is then moved to storage, two 250-barrel tanks. Tests show this product to be 45 gravity. The finished fuel oil shows no trace of water or sediment.

While as yet the emulsion has only been moved approximately 1000 feet for refining, longer pick-up lines will be installed as the source of nearby supply is exhausted.

Fuel oil is requiring a heat treatment in being moved from storage to a loading rack at White Station, two miles distant, and is moved through a three-inch flow line with a one-inch steam line inside the three-inch line.

Gas for Colorado Town

Durango, Colo.—Voters of this town will decide June 12 on the proposal to grant Hope Engineering & Supply Company a franchise to distribute natural gas in this municipality. Similar applications of D. C. Boyd of Tulsa, Oklahoma, and A. T. Woods of San Antonio, Texas, were rejected by the council. It is proposed to bring gas from the Ute Indian structure in Northern New Mexico where the Midwest Refining Company and the Producers & Refiners Corporation have three large gas wells shut in. Rates proposed in the franchise are 75 cents for the first 1000 feet, 60 cents for the next 4000 feet, and graduating down to 7½ cents for all over 66,000,000 feet.

Barnsdall Land Department Change

Tulsa—A change in the managing of Barnsdall Oil Company's land department followed the resignation recently of John Fryer, head of that department for several years, and the management has been divided between Joseph Green and George Schwab. Mr. Schwab, who formerly was chief scout for Barnsdall, has been placed in charge of scouting and leasing, and Mr. Green, a veteran land man for Barnsdall, will be in charge of other land department work.

Mr. Fryer, popular engineer and land man in the Mid-Continent, has been made vice president and general manager for the Cardinal Oil Corporation.

Crescent Dome

Salt Lake City, Utah—The Pennsylvania interests which recently took over the Crescent Eagle Oil Company holdings on Crescent Dome in Southeastern Utah, have announced that a well will be spudded in there shortly to test the oil and potash possibilities. The Crescent Company well has been standing shut down for the last few years, although it has produced oil by heads from time to time.

Dr. W. Bernoulli, well known Swiss geologist and member of the A. A. P. G. and A. I. M. E., is making an extensive survey of California oil fields.

Portable Pumps

Steel Fittings **Steel Checks** **Steel Flanges**

Brass Products

Pipe Line Supplies

Wheatley Brothers Brass and Machine Works

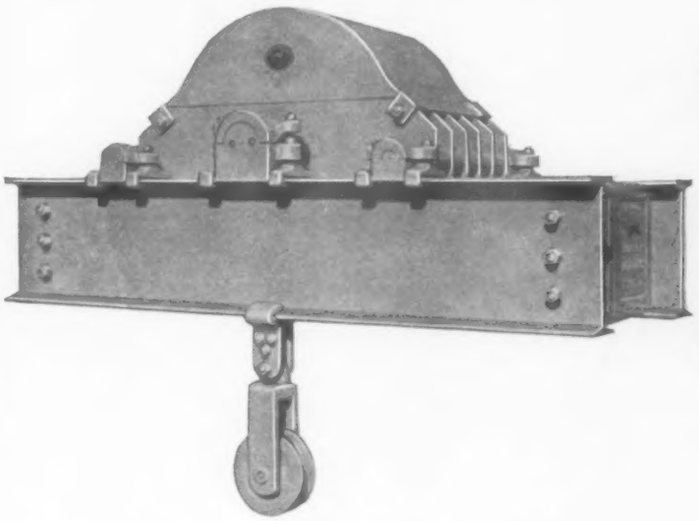
LOS ANGELES, CALIFORNIA TULSA, OKLAHOMA KANSAS CITY, MO.

A "CROWNING" Achievement

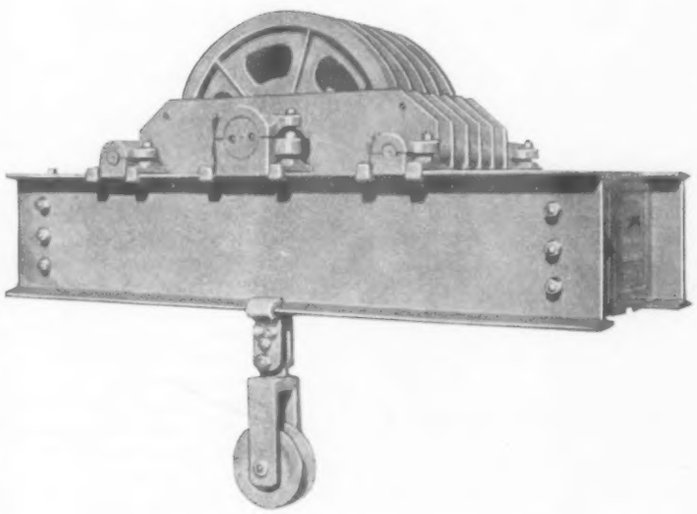
The NEW

BOYKIN CROWN BLOCK

(TYPE D)



Built for strength, durability and compactness.

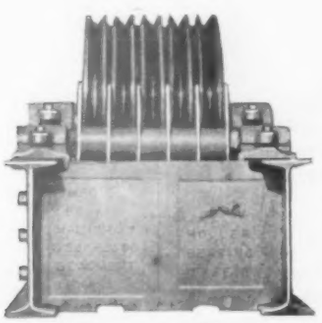


Perfect alignment between Crown and Travelling Blocks.

The "Crown" of all Crown Blocks

Just as the BOYKIN "Greyhound" Travelling Block blazed the trail with its superior performance and in so short a time swept into favoritism throughout the fields of Oklahoma, Arkansas, Louisiana, and Texas—so will the new BOYKIN Crown Block become the favorite, just as soon as Operators and Drillers try it.

This new Crown Block incorporates all the salient features that made the BOYKIN Travelling Block so famous; roller bearing, self oiling, perfect balance, no friction and easy on the lines.



Equipped with BOYKIN Patented Adjustable features.

If you would like to take the strain off your derrick and equipment, speed up operations, treble the life of your lines and balance your entire operations—TRY THE NEW BOYKIN CROWN BLOCK.

BOYKIN MACHINERY & SUPPLY CO.

Manufacturers of the Famous "Greyhound" Rotary Drawworks and Blocks

BEAUMONT **TEXAS**

Deepening Gives Champagnolle More Valuable Oil Area

SHREVEPORT, La.—Deepening operations that have been in progress during the past week, as well as new development work that has been completed, undoubtedly gives a more promising aspect to the Champagnolle area, in Union County, Arkansas. The producing horizon is gradually spreading as new wells are drilled down to the sand and the size of recent wells also indicate that a large body of oil has been tapped.

The Lion Oil Refining Company's Rowland 1, Section 15-17-14, which encountered the first salt water in the deep sand in the Champagnolle field, at 3208 feet during the past week, was finally completed as a 2300 barrel well after having been plugged back to 3204 feet, where a complete string of four and one-half inch casing was set, and drilled to 3211 feet. During the first 12 hours it produced 1100 barrels of clean oil.

Magna Production Company's Dumas 3, in Section 11-17-14, was completed at 3157 feet, in 24 feet of broken sand and produced at the rate of 2500 barrels a day. The oil is clean, with no sign of salt water; and is of the usual gravity of the other wells in the field, around 35 degrees Beaume gravity. This same company also recorded a failure during the week, when its Rowland 2, Section 14-17-14, after setting casing at 3223 feet, was drilled to 3273 feet. It made 2500 barrels of gross fluid, 95 per cent. of which was salt water. It is now dead. This well was first completed as an 80 barrel well in the 2900-foot sand.

Magna Production Company's Dumas 1, originally completed as a flowing well, producing between eight and nine hundred barrels of oil daily, has been deepened eighteen inches, and its production increased to 2500 barrels. Pure Oil Company's Gregory 1, discovery well in the deep sand, has been slightly deepened and increased its flow about 1500 barrels.

Several important tests are scheduled during the coming week, among them being the Gregory 1, of H. L. Hunt, in Section 10-17-14, which has set casing at 3210 feet. This well cored the chalky, volcanic ash formation slightly below the casing seat, which is typical of the 3200-foot sand wells; and this formation carried oil. Pure Oil Company's Gregory 3, in Section 11-17-14, which is a south offset to Dr. Rushing's Gregory 1, has been drilled to 3187 feet, where liner is being set for a test of four feet of good sand. Arkansas Drilling Company's Carroll 1 well, in Section 1-17-14, is coring at 2996 feet, in a broken sand formation, and will be ready to test within a few days. The E. M. Jones Stegall test, in Section 22, which was tested as a salt water well at 3253 feet some weeks ago, is now coring at 3276 feet. In Section 14, one-half mile south of present production, O. W. Estes' Rowland 1 is swabbing 250 barrels a day from 2998 feet, and will probably be deepened. The Magna Production Company's Rowland 2, a north offset, is preparing to test at 3233 feet.

Very little progress was made in the Cotton Valley field, in Webster Parish, during the week.

Several wells that were begun after the discovery well was completed have reached a casing seat for the second string of casing, and should set the final string before the end of another two weeks. Allison et al, drilling for the Woodley Petroleum Company, in Lewis 1, in Section 15-21-10, has set and cemented nine-inch casing at 3540 feet. Magnolia Petroleum Company has set 8⅝-inch in its Aarnes Cox test, in Section 22-21-10, at 2851 feet, and is waiting for cement to set in its D. G. Cox 1 well, in the same section, after cementing off a salt water flow at 4752 feet. The Louisiana Oil Refining Corporation is drilling at 3900 feet in its Lindsay 4, Section 22-21-10, and at 3700 feet in its Crichton 5, Section 21-21-10. The Ohio Oil Company has set casing in two of the three wells that it is drilling on the same tract upon which the discovery oil well was completed, and is rapidly nearing a casing seat in the third. The Palmer Corporation is drilling at 3875 feet in Mixon 1, Section 22-21-10.

Attention is being attracted to the Empire Gas & Fuel Corporation's Nicholson 1 wildcat test, in Section 33-17-14, Caddo Parish, almost within the city limits of Shreveport, which has reported a strong showing of gas and oil at 3778 feet. A core of sandy shale was taken at 3778 feet to 3784 feet, and its general appearance was such as to justify setting casing for a test. The hole is now being reamed.

This well is situated near several test wells that have been drilled in previous years, although none of them attained as great a depth as has the present well. It is located upon a tract of 4000 acres of leases that was assembled prior to the beginning of drilling operations; and it is understood that, should it be tested as a failure at the present level, the hole will be carried to 4500 feet.

Government to Extract Helium From Gas in Panhandle

THE final closing of a contract with the Amarillo Oil Company of Amarillo, Texas, which, it is thought, will greatly increase the available supply of helium, the rare non-inflammable gas required for the operation of dirigibles, is announced by the United States Bureau of Mines, Department of Commerce. Under the terms of the contract, the bureau will undertake the extraction of the helium from natural gas from the company's leases on the Cliffside structure in Potter County, Texas, at a new helium plant to be constructed by the government at Amarillo.

The Bureau of Mines, which has always played a prominent part in the development of helium for use in dirigibles, has had jurisdiction over production and conservation of helium for the War and Navy Departments since July 1, 1925. All of the helium produced by the government to date, has been extracted from gas from the Petrolia field in Clay County, Texas, at the United States Helium Production Plant near Fort Worth, Texas. As this source of supply is no longer capable of meeting the demands of the War and Navy Departments, the Bureau of Mines has been working toward the development of other fields.

Knowing of the government's need for increased supplies of helium, the Amarillo Oil Company, through its president, N. K. Moody, offered to place gas from its leases on the Cliffside structure at the disposal of the government and to provide for the disposal of the gas from which helium has been extracted. After a thorough study by the Bureau of Mines engineers of all known sources of supply of heilum-bearing gas, giving consideration to the quantity of gas available, its helium content, the terms under which it could be obtained, prospective life of the supply, possibilities of disposing of residue gas and numerous other factors, the Cliffside Structure was found to be the most promising field upon which a new project for augmenting the production of helium might be based; also the vicinity of Amarillo was found to be a suitable location for a helium plant.

Through cooperation of officials of the Amarillo Oil Company, the details with regard to the gas supply and disposal of the residue gas were worked out to the government's satisfaction. W. H. Bush of Chicago, Ill., through his agent, James Bush of Amarillo, and Lee Bivins, and the Fuqua Land and Cattle Company of Amarillo, fee owners of the land from which gas for the project is to be drawn, were also instrumental in working out practicable arrangements for the project.

Preparations are now being made for the erection of a helium plant near Amarillo to process gas from the Cliffside Structure. The details of plant location and construction are not yet fully developed, but it is planned to develop a helium project at Amarillo which will be an important factor in national defense.

PERSONAL MENTION-MEN YOU KNOW

Stephen H. Brooks, president of the Brooks Engineering Corporation of Los Angeles, recently returned to his headquarters from Russia, where he visited Moscow and all the oil fields in Southern Russia. Mr. Brooks reports that the general situation in Russia, so far as the oil industry is concerned, is showing unmistakable signs of improvement.

F. Dalton, president of the D. & M. Machine Works of Lomita, California, will leave California the week of May 21 for a tour of the Mid-Continent fields. Before returning to California, Mr. Dalton will confer with H. W. Millmine of the Texas Rubber Specialty Company, Gulf Coast distributors for the D. & M. Piston.

F. Garcia Ginto, engineer with the Argentine Government Oilfields, is a visitor in Los Angeles. Senor Ginto has headquarters at New York.

S. D. Butcher, formerly geologist for Marland Production Company in the Shawnee, Oklahoma, district has recently resigned to go with Tidal Oil Company, and will have headquarters in Tulsa.

F. C. Vandeinse has resigned as vice-president and a director of the California Petroleum Company; resignation to become effective June 1.

W. A. Yeager, manager of Prairie Oil & Gas Company's West Texas office, was recently named president of the Midland, Texas, Petroleum Club. George Vorbe, geologist for Texas Pacific Coal & Oil Company, was named secretary-treasurer, and George Coates, lease broker, vice-president.

Sherman Gehrett, oil field superintendent for Cranfill and Reynolds, Inc., died at his home in Hamlin, Texas, May 16, after a brief illness, and burial was made at Santa Anna, Texas. Gehrett has been in charge of Cranfill & Reynolds et al's wildcat producer in Fisher County.

E. H. Thorn, of Tulsa, has been appointed sales representative of the Jensen Bros. Mfg. Company, Coffeyville, Kansas, to cover the Texas territory with headquarters at Fort Worth.

Comer Plummer, formerly assistant to the vice president and general manager of the southwest division of the Pure Oil Company, has recently been elected to succeed the late H. N. Cole, vice president and general manager, who died May 3 in Tulsa. Mr. Plummer became Mr. Cole's assistant June 15, 1927, prior to which time he was assistant to B. S. SoRelle, manager of the Pure's Texas division.

C. D. WATSON

Chief engineer, Carter Oil Company, was recently appointed chairman of the Mid-Continent Section of Development and Production Engineering Division of the American Petroleum Institute. The engineering angle will be paramount in discussions planned for the June 12-14 meeting of the standardization division of the A. P. I. at Colorado Springs. Efforts are being made on the part of the engineering body to develop a better class of technical men. C. V. Millikan, production engineer for Amerada Petroleum Corporation, was named vice-chairman of the Mid-Continent Section and W. K. Whiteford, production engineer for Barnsdall Oil Company, was named secretary and treasurer. The Development and Production Engineering Division will hold a separate meeting at the Colorado Springs meet.

"Dutch" Zwerneman, who has been in charge of the Santa Fe Springs territory for Axelson Machine Company, has been advanced to the Tulsa office and is now assistant to D. M. Hammett. J. H. Griffin, who has been at the Huntington Beach store of the Axelson Machine Company, will hereafter be at the Santa Fe Springs store.

Frederick G. Clapp has recently been in the oil fields at Mesjid-i-Sulieman and elsewhere in Southern Persia.

Barney Barnwell, assistant sales manager for Axelson Machine Company, is making a six week's tour of the Mid-Continent oil fields. During the absence of Clyde Ellwood, general sales manager, who was in London and enroute for several weeks, Barney was at the helm of the sales department in Los Angeles and immediately upon Mr. Elwood's return to the plant he left for the Mid-Continent tour.

Joseph Regan, president, and Bert Cleveland, sales manager of the Regan Forge & Engineering Company, have returned to the factory at San Pedro after a two-months' tour of the Mid-Continent, Gulf Coast, Rocky Mountain and Wyoming oil fields. During their trip they visited practically every active drilling field and also spent considerable time in New York arranging for export shipments. They were accompanied by Mr. Regan's son, Tom.

C. L. Coppage, dircetor of the western sales division of The Texas Corporation (California Petroleum), has returned to Los Angeles after an extensive foreign trip.

Leon J. Pepperberg, who has been doing a general consulting business as a geologist and engineer for several years with headquarters in Dallas, has closed his office in Dallas to become consulting geologist for the Columbia Engineering Management Corporation which manages the Columbia System, consisting of the Ohio Fuel Gas Co., United Fuel Gas Co., and a number of other subsidiaries. His headquarters will be with the Ohio Fuel Gas Co., 99 North Front Street, Columbus, Ohio. Mr. Pepperberg is well known to the oil fraternity at large. He was formerly a member of the Nebraska Geological Survey, U. S. Geological Survey, was geologist for the Southern Pacific Company, Texas & Pacific Land Trust and was geologist and manager for C. J. Wrightsman.

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1927	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Ave.	United States Total
January	598,500	117,200	466,400	173,900	52,900	131,550	107,850	84,450	653,450	2,386,200	73,972,150
February	693,350	116,250	479,800	154,600	52,800	128,200	107,150	85,300	642,700	2,460,150	68,884,300
March	710,350	116,100	475,000	154,750	51,450	124,500	104,400	87,600	640,850	2,465,000	76,414,900
April	723,700	115,400	477,300	155,100	50,500	113,350	108,000	89,350	644,550	2,477,250	74,317,750
May	742,200	114,600	488,700	151,300	47,450	112,700	114,000	89,300	633,550	2,493,800	77,307,700
June	768,600	112,200	480,800	151,650	49,150	112,450	111,850	86,050	638,550	2,511,300	75,338,900
July	846,750	107,750	475,800	142,950	56,200	109,900	111,800	86,950	620,700	2,558,800	79,322,300
August	832,900	105,100	483,450	139,350	56,950	104,750	114,600	80,750	621,450	2,539,300	78,717,850
September	797,450	105,200	493,750	142,900	53,450	101,350	110,800	74,500	637,250	2,516,650	75,498,900
October	782,300	105,100	497,900	138,400	51,300	100,450	113,600	73,250	629,000	2,491,300	77,230,000
November	766,900	106,650	501,750	138,100	49,400	97,850	114,900	75,050	623,850	2,474,450	74,233,500
December	720,700	106,150	531,650	138,500	47,200	94,950	111,250	77,150	624,600	2,452,150	76,017,050
1928											
January	675,450	108,300	523,300	125,450	45,250	90,050	109,600	77,000	617,100	2,371,500	73,516,500
February	664,450	110,550	538,750	115,800	45,300	88,250	104,850	75,550	614,750	2,358,250	68,388,850
March	646,850	112,250	575,850	119,900	44,400	85,600	102,150	78,700	617,450	2,383,150	73,877,650
April	620,450	112,150	617,850	118,850	46,900	83,450	107,000	78,500	613,550	2,398,700	71,961,100
May 5	617,100	110,300	672,750	123,750	44,800	84,100	110,500	81,050	622,300	2,466,650	17,266,550
May 12	613,300	109,150	557,550	129,850	43,450	86,100	111,500	81,600	622,900	2,355,400	16,487,800
May 19	610,050	108,150	535,950	130,000	43,600	86,600	112,500	80,150	632,000	2,339,000	16,373,000
Increase	.....	.....	.....	150	150	500	1,000	.....	9,100	.....	.....
Decrease	3,250	1,000	21,600	.....	.....	.....	.....	1,450	.....	16,400	114,800

TEXAS

(Outside Gulf Coast)

PANHANDLE DISTRICT

	May 19	May 12
Carson County	7,250	6,950
Gray County	18,800	18,650
Hutchinson County	38,900	39,900
Wheeler County	1,000	1,100
Others	250	200
Totals	66,200	66,800

NORTH TEXAS

Archer County	22,400	22,700
Baylor County	100	100
Burkburnett	11,250	11,500
Clay County (Petrolia)	500	500
Electra	12,550	12,700
Iowa Park-KMA	3,500	3,600
Montague and Cooke Cos.	12,000	12,100
Wilbarger	12,500	12,350
Totals	74,800	75,600

WEST CENTRAL TEXAS

Brown County	12,600	12,700
Callahan County	3,750	3,750
Coleman County	1,750	1,500
Eastland-Desdemona	7,350	7,550
Jack County	1,450	1,400
Palo Pinto County	400	450
Shackelford County	10,000	9,750
Stephens County	8,150	8,000
Throckmorton County	1,000	1,000
Young County	7,700	7,900
Others	650	750
Totals	54,800	54,750

WEST TEXAS

Crane-Upton Counties	68,900	71,800
Crockett County	2,400	2,350
Howard County	4,300	4,300
Jones County	1,250	1,300
Mitchell-Scurry Cos.	3,000	3,000
Pecos County	51,200	51,500
Reagan County	17,700	18,150
Winkler County	143,600	159,700
Others	1,750	1,800
Totals	294,100	313,900

EAST CENTRAL TEXAS

Corsicana-Powell	11,250	11,650
Currie	550	550
Mexia	7,100	7,350
Nigger Creek	1,250	1,350
Richland	550	500
Wortham	1,950	2,000
Totals	22,650	23,350

SOUTHWEST TEXAS

Dale	1,400	1,000
Laredo District	6,000	6,000
Luling	13,450	13,650
Lytton Springs	1,450	1,400
Somerset	700	700
Others	400	400
Totals	23,400	23,150
T'tl Tex. (Outside Gulf Coast)	535,950	557,550

TEXAS GULF COAST

Barbers Hill	550	500
Batson	1,400	1,400
Big Creek	1,500	1,450
Blue Ridge	8,200	9,000
Boling	2,800	3,100
Damon Mound	900	900
Goose Creek	7,100	7,200
Hull	13,000	10,900
Humble	1,000	1,050
Orange County	4,500	4,400
Pierce Junction	13,700	13,300
Saratoga	1,100	1,050
Sour Lake	3,500	3,500
South Liberty	3,800	3,550
Spindle. Top	38,200	38,350
West Columbia	8,250	9,700
Others	2,250	2,500
Totals	111,750	111,850
Texas total	647,700	669,400

OKLAHOMA

North Braman	3,000	3,050
South Braman	1,600	1,550
Blackwell	3,650	3,650
Hubbard	2,900	2,900
Thomas	1,450	1,450
Tonkawa	13,750	13,800
Garber	8,600	8,700
Burbank	34,350	34,850
Osage (outside Burbank)	28,700	28,800
Watchorn	800	800
Cushing	20,300	20,300
Yale Jennings	9,050	9,050
Davenport	2,000	2,000
Bristow Slick	23,800	23,900
North Okmulgee	15,500	15,500
Lyons Deaner	6,500	6,500
Stroud	1,000	1,050
Cromwell	9,700	9,750
Papoose	4,450	4,500
Wewoka	6,950	7,200
Seminole	52,750	54,950
Bowlegs	66,300	68,350
Searight	14,800	14,800
Little River	45,050	45,100
Earlsboro	95,200	95,750
Duncan District	6,800	6,650
Graham	5,800	5,800
Fox	1,700	1,700
Healdton	13,900	13,950
Hewitt	9,000	9,000
Scholem Alechem	14,000	13,000
Others	86,700	84,950
Totals	610,050	613,300

CALIFORNIA

Santa Fe Springs	36,500	36,500
Long Beach	184,000	173,000
Huntington Beach	56,000	55,000
Torrance	18,500	18,500
Dominguez	12,000	12,000
Rosecrans	6,000	6,000
Inglewood	29,000	29,000
Midway-Sunset	73,500	73,500
Ventura Avenue	47,00	49,000
Seal Beach	37,500	38,000
Others	132,000	132,400
Totals	632,000	622,900

KANSAS

Greenwood County	29,300	29,500
Florence Covert	1,400	1,350
Peabody-Ebling	3,600	3,650
Eldorado-Towanda	14,050	14,100
Augusta-Fox Bush	4,050	4,050
Rainbow Bend	1,600	1,700
Russell	3,200	3,300
Churchill	11,800	11,050
Oxford	14,400	15,500
Others	24,750	24,950
Totals	108,150	109,150

NORTH LOUISIANA

	May 19	May 12
Homer	4,450	4,450
Haynesville	6,250	6,300
Caddo Light	10,000	9,750
Caddo Heavy	3,750	3,750
DeSoto-Red River	4,050	4,100
Elm Grove	550	400
Bellevue	1,050	1,050
Cotton Valley Light	1,900	2,100
Cotton Valley Heavy	4,300	4,250
Urania	6,750	6,750
Pleasant Hill	550	550
Totals North Louisiana	43,600	43,450

LOUISIANA GULF COAST

Edgerly	1,100	1,100
Evangeline	1,000	1,100
Lockport	4,050	4,100
Vinton	4,500	5,000
East Hackberry	4,100	3,350
Bayou Boullion	500	400
Sulphur Dome	2,700	2,600
Others	300	350
Total Louisiana Gulf Coast	18,250	18,000
Louisiana total	61,850	61,450

ARKANSAS

El Dorado	5,300	5,300
Champagnolle	7,350	7,050
Smackover Light	7,800	7,700
Smackover Heavy	61,250	61,150
Stephens	1,050	1,050
Nevada	1,550	1,550
Lisbon	2,200	2,200
Others	100	100
Totals	86,600	86,100

MOUNTAIN STATES

WYOMING

Salt Creek	37,950	41,350
Grass Creek	2,500	2,450
Elk Basin	1,100	1,300
Big Muddy	2,700	2,650
Lost Soldier	5,000	5,000
Rock River	2,450	2,500
Lance Creek	750	750
Others	7,300	5,800
Totals	59,750	61,800

MONTANA

Cat Creek	1,750	1,750
Sunburst	9,600	9,600
Others	150	150
Totals	11,500	11,500

COLORADO

Moffats (Craig)	1,450	1,350
Fort Collins	2,700	2,900
Florence	1,100	1,150
Others	1,050	950
Totals	6,300	6,350

NEW MEXICO

Totals	6,300	6,350
Artesia	1,200	1,200
Hogback	500	500
Rattlesnake	700	50
Others	200	200
Totals	2,600	1,950
Totals Mountain States	80,150	81,600

EASTERN STATES

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., and N. Y.)	112,500	111,500

PRODUCTION SUMMARY

East of Rockies	1,626,850	1,650,900
	2,339,000	2,355,400

FAST — VERTICAL BOOM — OVERLOAD RELEASE — COMPACT

NO APOLOGIES AND NO HIGH COSTS

TO prove that no Barber-Greene coughs apologetically and calls for pick and shovel help on anything at all diggable — we cite the many instances of tough digging detailed in "Ditching Snapshots and Records."

To prove that such a ditcher earns new profits, even on digging ordinarily turned over to picks and shovels, we cite the cost records listed in the same book.

There is Both Progress and Profit in Barber-Greene Ditching

To illustrate why the Barber-Greene is able to do these things, which other ditchers cannot, we point to the Vertical Digging Boom and its milling action digging and to the Automatic Overload Release which protects the ditcher against underground hazards.

A copy of "Ditching Snapshots and Records" will be sent on request — without obligation, of course.

Barber-Greene Company, 615 West Park Ave., Aurora, Illinois

Vertical Boom Barber-Greene DITCHER

Four to Seven Feet Maximum Depths
Standard Widths: Eighteen to Twenty-four Inches
Also, Conduit and Curb and Gutter Specials

Say you saw it in The OIL WEEKLY

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

SUMMARIZED REVIEW OF FIELD RESULTS

State—	Completions This Week	Completions Last Week	Producers This Week	Producers Last Week	Gas Wells This Week	Gas Wells Last Week	Failures This Week	Failures Last Week	Initial Production This Week	Initial Production Last Week
Arkansas	3	4	1	3	..	..	2	1	25	4,130
California	18	16	15	14	..	..	3	2	12,040	16,225
Colorado	5	1	4	1	..	..	1	..	552	100
Illinois	4	3	..	1	1	..	3	2	....	2
Indiana	9	1	3	..	2	..	4	1	53	....
Kansas	16	13	8	5	1	..	7	8	1,215	775
Kentucky	23	25	16	14	..	2	7	9	1,221	1,135
Louisiana	10	13	..	2	4	6	6	5	....	130
Michigan	7	..	4	..	1	..	2	..	540	....
Montana	4	5	4	4	..	..	..	1	1,040	125
New York	15	..	13	..	..	..	2	..	37	....
Ohio	17	21	13	10	1	9	3	2	803	893
Oklahoma	91	73	36	40	13	4	42	29	30,849	17,862
Pennsylvania	68	7	57	1	8	3	3	3	304	3
Texas	106	125	45	65	5	2	56	58	9,891	80,153
West Virginia	15	24	2	4	12	14	1	6	20	24
Wyoming	3	2	3	2	..	..	..	..	488	246
Totals	414	333	224	166	48	40	142	127	59,078	121,803
Increase this week	81	..	58	..	8	..	15	..	....	....
Decrease this week	..	..	..	..	..	..	..	..	62,725	....

EASTERN STATES

PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
BRADFORD FIELD—		
South Penn Oil Co., Bingham 499, tract 1	5	....
Bingham 570, tr 1	4	....
Bingham 439, tr 109	7	....
Bingham 439, tr 110	12	....
Bingham 494, tr 1	5	....
Bingham 408, tr 20	2	....
Bingham 390, tr 3	2	....
Fee 69	12	....
Fee 70	2	....
Fee 71	2	....
Fee 72	2	....
Fee 73	2	....
H. E. Smith 159	2	....
H. E. Smith, 160	2	....
Culbertson 70	2	....
Culbertson 71	2	....
Zimmer 113	3	....
Redfield & Co. 4	3	....
Associated Prod. Co., Bingham 582, tract 2	12	....
Harrise Oil Co., Bingham 188, tr 1	7	....
Hazlewood Oil Co., No. 22, tr 47	2	....
Bingham 9	4	....
Forest Oil Corp., Tyler 203	2	....
Tyler 205	2	....
Tyler 83	2	....
Newton Smith, Hawkins 1	3	....
Hawkins 2	4	....
H. L. & C. Jack, Jack 1	7	....
M. L. Lilly & Co., Middaugh 23	3	....
Middaugh 24	3	....
L. F. Kinley & Co., Mantz 2	7	....
Denwood Oil Co., Denwood 12	5	....
Dunlavey Bros. & Curtis, Fee 1	12	....
Davis Oil Co., Davis 12	4	....
Davis 13	5	....
Davis 14	*	....
N. V. V. Franchot, Loop Estate 2	7	....
Loop Estate 3	8	....
V. G. Smith, Fee 1	5	....
Lane & Co., Bingham 371, tr 1	5	....
R. O. Landers & Co., Landers 18	7	....
C. P. Byron & Co., Bingham 577, tr 1	5	....
Simpson & Greer, Williamson 1	4	....
First Nat. Bank of Olean, Keating 1	7	....
L. G. Schenfield, Schenfield 2	3	....
D. J. Moody, Moody 24	3	....
Pressure Oil Co., Howard 7	4	....
Howard 7	4	....
BUTLER COUNTY—		
Mars Production Co., Dean 1	4	....
McCullough Gas Co., Fee 2	¶1	....
R. A. Marshall, Wurtz 1	2	....
Phillips Oil & Gas Co., Donnelly 2	¶1	....
McGill & Co., McDermott 9	¶1	....
Jacob Morris, Strickline 1	¶1	....
Columbia Nat. Gas Co., Ringer 1	¶1	....
Wise 1	*	....

Company, Well and Location	Initial Production Bbls.	Depth
VENANGO COUNTY—		
Whitling & Howard, Whitling 5	3	....
National Petroleum Co., Mill 18	2	....
Hell & Master, Beals 14	2	....
W. A. Jemerat, Black 5	2	....
D. N. Lewis & Co., Graybill 1	1¶	....
McLane, Keatley & Co., Reed 6	¶1	....
Wempseytown Gas Co., Cohlheep 1	¶1	....
McElhattan & Johnson, McElhattan 1	*	....
CENTER-MIDDLE FIELD—		
South Penn Oil Co., lot 425, tr 32	5	....
Williams 39	2	....
J. G. Cochran, lot 408, tr 49	5	....
WARREN FIELD—		
Grosch & Rhulman, Irvine Estate 1	60	....

NEW YORK

Company, Well and Location	Initial Production Bbls.	Depth
ALLEGANY COUNTY—		
Bradley Prod. Corp., Fee 13	*	....
Fee 14	4	....
LeSeur Oil Corp., LeSeur 24	3	....
LeSeur Oil Corp., LeSeur 25	4	....
J. K. Cochran & Co., McDermitt 13	2	....
McDermitt 14	5	....
Forest Oil Corp., July 2	2	....
July 4	2	....
July 7	2	....
Mary Lippert & Co., Lippert 6	2	....
N. V. V. Franchot, Zimbaur 1	2	....
W. O. & C. O. Taylor, Taylor 2	3	....
Homestead Oil Co., Homestead 1	4	....
A. C. A. Oil Corp., Fee 1	*	....
G. W. & P. Birteil, Birteil 1	2	....

WEST VIRGINIA

Company, Well and Location	Initial Production Bbls.	Depth
LINCOLN COUNTY—		
Empire State Gas Co., Butcher 1	¶½	....
Hobbs Bros., Carpenter 1	¶½	....
J. W. Reishman, Beheler 1	¶½	....
PLEASANTS COUNTY—		
Samuel Glenn & Co., Smith 2	¶¼	....
George Pickens & Co., Bennett Hrs. 2	5	....
ROANE COUNTY—		
United Carbon Co., Keene 1	¶1½	....
United Fuel Gas Co., Stump 1	¶1½	....
CLAY COUNTY—		
Ohio Fuel Oil Co., Reed 2	15	....
BOONE COUNTY—		
United Fuel Gas Co., Horse Creek Land 17	¶¾	....
LEWIS COUNTY—		
J. A. Anglin & Co., Smith 1	¶2	....
DODDRIDGE COUNTY—		
Claud Maxwell, Baptist lot 1	¶¾	....
RITCHIE COUNTY—		
Astron Oil Co., Steusburg 9	¶¾	....
BRAXTON COUNTY—		
United Gas Co., Enfle 1	¶1¼	....
TYLER COUNTY—		
Little Flower Oil & Gas Co., Anderson 1	¶½	....
WETZEL COUNTY—		
Monogalia-West Penn Electric Co., Renner 1	*	....

KENTUCKY

Company, Well and Location	Initial Production Bbls.	Depth
OHIO COUNTY—		
Daugherty & Co., Rhodes 7	150	724
James C. Ellis, Daniels 5	200	622
James C. Ellis, Hoagland 4	150	....
Daugherty & Co., Rhodes 8	10	761
Cumberland Petroleum Co., Hamilton 9	150	....
Ohio Oil Co., Taylor 1	55	574
Davis 3	40	719
Hartman, Sargent & Co., Atherton 1	20	....
Hunt & Kerr, Duff 1	10	....
Young & Lee, Ezell 4	50	693
Wood Oil Co., Elmore 29	100	690
White Plains Oil & Gas Co., Howard Heirs 6	1	497
Robbins & Co., Ashby 1	*	815
Daley & Lowman, Bakers Bros. 1	*	450
Thomas Hunt & Co., Moseley Heirs 1	*	665
DAVIESS COUNTY—		
Stimson & Co., Mayfield 1	150	918
Creek Drlg. Co., Leet 2	70	1271
Conrad Kipp & Co., Mattingley Heirs 6	30	....
S. K. Patrick & Sons, Alvey 1	*	1560
Lancaster Oil Syndicate, Murphy 1	*	....
ALLEN COUNTY—		
Stumbo & Stumbo, Hinton 5	*	300
Mid-Southern Oil Co., Woods 20	*	272
HANCOCK COUNTY—		
Tri-County Oil & Gas Co., Rosenblatt 1	35	....

SOUTHEASTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
BELMONT COUNTY—		
Dollar Savings Bank Co., Stranger 1	2	....
JEFFERSON COUNTY—		
Gordon & Co., Bruns 1	*	....

CENTRAL OHIO

Company, Well and Location	Initial Production Bbls.	Depth
PERRY COUNTY—		
Wehrle Interests, Pletcher 2	215	....
Pletcher 3	221	....
William Cline & Co., Burley-Winters 1	160	3690
ATHENS COUNTY—		
Athens State Oil & Gas Co., State of Ohio Land 12	8	....
Gross, Freboult & Co., Higgins 6	2	....
Farmers Oil & Gas Co., Wilson 1	¶1	....
GUERNSEY COUNTY—		
Preston Oil Co., Curran 2	75	3495
Davis Bros. & Co., Ruby 3	50	3600
MEIGS COUNTY—		
Wheeler & Griffith, Wells 1	3	....
Coal Hollow Oil & Gas Co., Burdett 5	3	....
LICKING COUNTY—		
Hope Cons. & Ref. Co., Griffin 1	6	....
HOCKING COUNTY—		
Berlin & Co., Riggs 1	*	....
MUSKINGUM COUNTY		
Ohio Oil Co., Curran 1	*	3398

NORTHWESTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
SHELBY COUNTY—		
Henry Ernst, Ernst 1	35	1312
ALLEN COUNTY—		
H. F. Kelly & Co., Miller 3	25	1368
AUGLAIZE COUNTY—		
Farmers Oil Co., Headapohl 1	*	1271

INDIANA

Company, Well and Location	Initial Production Bbls.	Depth
GIBSON COUNTY—		
Texana Oil Co., Crackel 1	35	1500
Mann & Huber, Page 1	¶½	534
J. S. Young & Co., Carrithers 2	*	....
Arthur Mauk & Co., Howe 1	*	1160
Murphy Oil Co., Fredericks	*	....
PIKE COUNTY—		
Murphy Oil Co., Stewart Bros. 9	10	1352
DAVIESS COUNTY—		
Phipps, Blosser & Co., Cavanaugh 1	8	749
RUSH COUNTY—		
W. L. Harkless, Harkless 1	¶1½	....
VIGO COUNTY—		
Wilson & Marshall, Bleemell 1	*	2380
SPENCER COUNTY—		
D. D. Flanagan, Hoover 3	*	1345

These Byron Jackson Multiplex pumps at Watson deliver crude oil, fuel oil, and gasoline to Los Angeles Harbor ten miles away. The compactness of this installation particularly commands attention. By means of manifold piping, the first four units alone can pump 250,000 barrels per day at 150 to 160 pounds pressure; 125,000 barrels at 300 to 320 pounds pressure and 62,500 barrels at 600 to 700 pounds pressure. Byron Jackson Multiplex centrifugal pumps in every test have always been found to pump oil and gasoline at the least cost per barrel.

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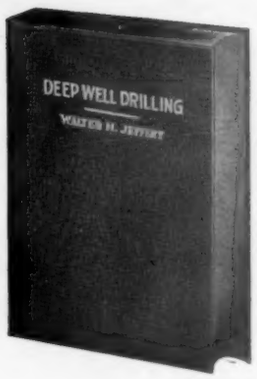

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ILLINOIS

Company, Well and Location	Initial Production Bbls.	Depth
WABASH COUNTY—		
J. S. Young Co., Kogan 1	*	....
Leek 2	*	....
Coon Creek Oil Co., Biehl 4	*	....
CRAWFORD COUNTY—		
Dill & Weger, Weger 1	¶½	670

MICHIGAN

MUSKEGON COUNTY—		
Muskegon Oil Corp., Heinz 1	360	....
Torrent Estate 1	20	....
Dixie Oil Co., Figgie B2	150	....
Reed Oil Co., Torrent 1	10	....
Bull Dog Oil & Gas Co., Giles 1	*	2200
MASON COUNTY—		
Logan Oil Co., East of Luddington 1	¶2	....
OTTAWA COUNTY—		
Ottawa Prospecting Co., Near Holland 1	*	2000

CALIFORNIA

HUNTINGTON BEACH—		
Cloud Oil Co., 2	100	2232
Globe Lease and Royalty Co., 4	250	4325
MIDWAY—		
Union Oil Co., McCloud 14, 34-31-23	80	3325
MT. POSO—		
F. J. Elliott 1, 20-27-28	*	2480
LONG BEACH—		
California Eastern Oil Co., Capital 1	1400	5685
General Petroleum Corp., B-K 5B	3200	6590
Keck Synd., 3	500	5615
General Petroleum Corp., K-H 8	2000	7032
Richfield Oil Co., Denni 6	1100	7401
Signal Synd., 7	1400	6065
RINCON—		
Chanslor-Canfield Midway O. Co. C-1	150	3160
Southern Pacific Land Co., 1	325	3150
SANTA FE SPRINGS—		
Union Oil Co., Howard 8	225	4575
SOUTH MOUNTAIN—		
Union Oil Co., Snider 3	100	3125
VENTURA—		
Shell Co., Gosnell 25	1100	6927
WHEELER RIDGE—		
Standard Oil Co., 33, 27-11-20	110	2800

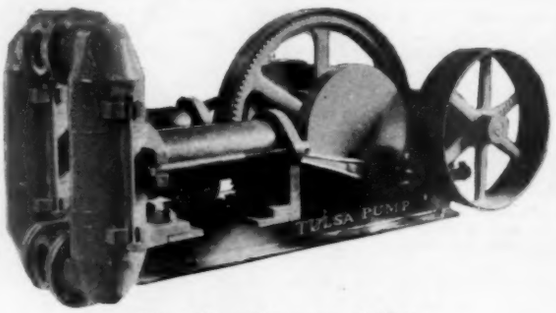
OKLAHOMA

BECKHAM COUNTY—		
Magnolia, 1, nw c, 21-9n-23w	*	....
CARTER COUNTY—		
Magnolia, I. Bumpass 5, sw nw se, 33-1s-3w	104	3690
The Texas Co., Woodward 1, se sw se, 15-1s-3w	*	2875
COMANCHE COUNTY—		
Jolly-Ogg Oil Co., Sparlin 1, se c ne, 24-3n-10w	*	3009
COTTON COUNTY—		
Cullum et al, Chambers 1, nec sw, 35-1s-10w	*	2360
CREEK COUNTY—		
Riverland Oil Co., Friday 1A, sw c se se, 31-15-9e	157	3122
Empire Oil & Ref. Co. et al, Micco 1, se c nw nw, 18-14-10e	37	2850
C. G. Tibbens, Jackson 3, nec sw, 4-18-12e	¶2	1744
H. J. Haubert et al, Bruner 3, sw c sw nw sw, 24-18-11e	¶1	1786
Lima Oil & Gas Co., Henechochee 1, ne c se se, 35-15-7e	*	2635
Bu Vi Bar Oil Co., Cain 3A, 18-17-7e	*	2842
Andrew Drlg. Co., Hengst 1, se c nw sw, 6-17-12e	*	....
Skelly Oil Co., et al Dickson 1, nw c sw, 19-17-10e	*	3111
GARFIELD COUNTY—		
Marland Oil Co., Rhoades 1, nw ne nw, 30-23-3w	¶43	5506
GRADY COUNTY—		
Carter Oil Co., Carter-Kerans 5, nw c ne se, 21-3n-5w	110	1796
Okla. Nat. Gas Co., Smith 5, ne sw sw, 26-5n-8w	¶45	2390
Magnolia Pet. Co., Farwell 8, se nw se, 23-5n-8w	¶37	2297
HUGHES COUNTY—		
Dixie Oil Co. & Phillips Pet. Co., Perryman 2, se c sw, 17-8n-10e	10	3344
KAY COUNTY—		
Carter Oil Co. & Ona Oil Co., Johnson 1, c se ne, 18-29-1e	¶6	1476
Martin et al, House 1, nec sw, 32-27-1w	*	835
Industrial O&G Co., Wright 1, c sw sw, 1-27-1w	*	860
McDorman et al, Campbell 1, sec sw 32-29-1w	*	950
LINCOLN COUNTY—		
Morgan & Flynn, Smith 1, se ne nw, 27-17-5e	*	4122
LOGAN COUNTY—		
Ramsey Bros., Smith 1, ne c sw, 33-18-4w	40	4126
T. & P. Coal & Oil Co., Jewell 1, nw ne nw, 27-18-4	¶4	3856
Sinclair O&G Co., Weber 1, sec, 18-19-4w	¶53	4575
The Prairie O&G Co., et al, Cy Moore 1, se ne ne, 33-18-4w	*	6210
T. B. Slick, Signs 1, nw c se, 20-17-1e	*	5062
T. & P. Coal & Oil Co., Roberts 1, sw nw nw, 34-18-4w	*	....
MUSKOGEE COUNTY—		
M. S. Musselem, Evans 2, sw c se, 32-14-19e	¶8	1449
Tidal Oil Co., Sanders 9, nw c se sw, 34-15-18e	3	1075
Hilcrest Oil Co., Kell 1A, ne c nw, 7-14-19e	*	1080
P. H. Stein, Cobb 2, ne c se nw sw, 6-14-19e	*	555
J. C. Becker, Kelley 2, nw se ne, 5-14-19e	*	625
B. B. Wheeler, Price 1, nwc ne sw, 4-14-19e	*	608
J. Bramer et al, Ross 1, sw c nw, se 4-14-14-19e	*	600
L. W. Sterling, Tiger 1, se c nw ne, 1-14-184	*	600
J. E. Sweatt, Parnell 1, sw c se se, 31-15-19e	*	1248
Minnie Reed, Wade 1, ne c se se sw, 31-15-19e	*	1436
C. D. Bradley, Baldrige 1, sw c nw, 15-15-19e	*	1610
Jolly-Ogg Oil Co., Serrell 1, ne c se ne, 21-15-15e	*	2215
Star Dev. Co., Morris 3, c w l ne se, 20-15-15e	*	1089
NOBLE COUNTY—		
John White et al, Cooper 1, c nw sw, 5-24-1w	*	2187
OKFUSKEE COUNTY—		
W. L. Umbrum, Hill 1, se c ne nw se, 11-10-11e	25	1630
Blakely et al, Yahola 1, sw c se nw, 8-12-10e	*	3167
Henry Oil Co., et al, Sears 1, se c ne, 5-11-11e	*	3164
OKMULGEE COUNTY—		
J. Aggas, Foster 7, se c sw sw, 6-13-15w	15	2064
J. E. Wallace, Colbert 9, ne c nw se, 14-14-14e	12	1650
Kirkland & Son, Louiney 7, sw c nw se, 17-15-13e	8	1373
E. W. Dodge, Bright 1, c e l nw se, 29-15-12e	¶1	300
G. H. Loweree, Eubanks 1, sw c ne ne, 17-13-14e	*	1831
O. D. Stansbury, Harrison 1, sw c nw se, 25-15-14e	*	480
Noble O. & G. Co., Fisher 2, ne c sw, 6-15-13e	*	2634
OSAGE COUNTY—		
Prairie O. & G. Co. 6, sw c ne sw nw, 21-27-6e	520	2945
Commercial Drlg. Co. 4, ne c sw sw, 22-21-12e	5	1289
Osage Gas Producers 387, se c sw nw ne, 32-24-12e	¶1	998
Peters Pet. Co. 4, se nw sw, 26-25-9e	25	2143
Kewanee O&G Co. 9, se c sw, 21-27-6e	71	2993
Savoy Oil Co. 1, nw sw ne, 24-22-10e	*	....
PAWNEE COUNTY—		
Garber & Pulse, Lucas 1, nw c ne, 28-21-8e	8	1689
Peter Adamson, Jr. 1A, se c nw, 25-21-8e	20	1124
R. E. Freeman et al, Adams 1, c nw ne, 17-21-7e	*	2600
PONTOTOC COUNTY—		
Homaokla Oil Co., Berry 4, nw ne se, 19-5-8e	642	2795
McCall 10, nw ne ne, 17-5Se	600	2600
SEMINOLE COUNTY—		
Carter Oil Co., Spillman 1, se sw sw, 7-6-8e	¶9	2846
Indep. O&G Co., Harris 5, se c nw, 23-7-6e	2590	4295
Sinclair O&G Co., Tewee 1, nw sw ne, 14-7-6e	3285	4130
Gypsy Oil Co., Hulhoke 1, ne c se, 14-7-6e	2555	4444
Pure Oil Co., Harjo 1, ne sw ne, 11-7-5e	3045	4218
Mid-Continent Pet. Corp., Bruner 1, se c, 11-7-6e	4910	4356
Gypsy Oil Co., Renton 3, sw ne ne, 11-7-6e	2270	4113
Sinclair O&G Co., Cosar 3, nw c, 36-8-6e	1330	4481
Dixie Oil Co., Culley 1, sw nw nw, 11-8-6e	245	4299
Sinclair O. & G. Co., Taylor 2, nw ne ne, 10-8-6e	805	4329
Superior Oil Corp. et al, Walker 1, se ne ne, 2-9-5e	6922	4390
Prairie O&G Co., Hudson 1, sw se se se, 12-7-6e	*	4342
Magnolia, Hyde 2, ne se nw, 13-9-5e	*	3375
Twin State Oil Co., Barker 7, se ne ne, 12-9-5	*	4264
STEPHENS COUNTY—		
Geo. Pace et al, Bristowe 1, ne c se nw, 18-2s-7w	30	1488
Petroleum Producers Co. & American Pipe Line Co., Brown 2, nwc sw sw nw, 7-2s-7w	240	1565
Pet. Producers Co. & Amer. Pipe Line Co., Bond 2, sw c nw sw, 7-2s-7w	120	1538
Murphy Oil Co., Fobb "B" 12, nec nw sw, 12-2s-8w	20	2063
Magnolia Pet. Co., Burke 4, sec sw ne, 34-1s-8w	30	1675
Pace et al, Absner 1, nw c, 7-3s-7w	*	2267
Muse et al, Brown 1, sw c, 7-2s-7w	*	2303
Maer & Stanforth, Bonds 1, sw c se, 7-2s-7w	*	2299
TULSA COUNTY—		
Suppees et al, Mackey 5, sw c se sw, 34-19-12e	10	2108
Sand Springs Home, Unallotted 3, sw se ne, 23-19-11e	¶1	1810
Glidden Oil Corp., Johnson 4, c n l sw ne, 15-19-11e	30	1799
E. A. Hawley, Taylor 1, se c ne, 1, 17-13e	*	200
Ellen O&G Co., Island 4, ne nw ne, 25-18-14e	*	1335

KANSAS

BUTLER COUNTY—		
Leonard Pet. Co. & Findeiss, Earl 1, ne c sw nw, 27-27-5e	*	2775
COWLEY COUNTY—		
Elliott et al, Elliott 2, nw c se ne, 17-31-5e	1	610
ELK COUNTY—		
Union Gas Corp., Chaffine 14, sw c, 14-31-10e	15	1643
Denman et al, Lewis 2, nw c sw se se, 35-31-10e	130	1575
Landon et al, Harkness 1, sw c, 26-29-12e	*	855
GREENWOOD COUNTY—		
Hubbard & Marcus, Freeman 3, sw c se, 6-24-11e	20	1860
Lassen et al, Wilkinson 2, ne c se se sw, 6-25-9e	75	2117
Reed & Wilson, House 1, ne c sw sw, 28-26-9e	¶4	1060
Griffith et al, Henderson 1, sw c nw, 12-26-11e	*	....
Foster Oil Co., Taylor 2, se c ne nw, 7-27-12e	*	....
MARION COUNTY—		
Lassen et al, Hanson 1, nw c se, 28-17-4e	*	2477
SUMNER COUNTY—		
Champlin Oil & Ref. Co., Latta "B" 2, se c sw nw, 9-30-2w	25	3076
Roxana Pet. Corp., Churchill 9, ne c nw se sw, 25-31-2e	700	1873
Wasson et al, Gassoway 9, swc se sw, 14-32-2e	150	1633
Barnsdall Oil Co. & Palmer, Weinrich 3A, nw c ne nw, 23-32-2e	100	1352
WOODSON COUNTY—		
Big Indian Oil Co., Gardner 1, se c nw, 27-23-17e	*	1272

SERVICE



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"It will make your dollars have more cents."

Business is a game we are all playing—Our motto is play fair. If we run over you in our automobile, we will apologize and maybe pay your doctor bill. If we bump in where we have no business, we back out and feel more embarrassed than the other folks. But if in a competitive way we offer you more service for your money than you can obtain elsewhere, we are not embarrassed and do not have to apologize. TUCO PUMPS are the connecting link between you and us—NEW AND BETTER. Will you let us prove it? We want to play with you on a GUARANTEE.

You, a satisfied customer, will help build our business. Pumps in operation near Tulsa, Oklahoma, for inspection.

TULSA PUMP COMPANY

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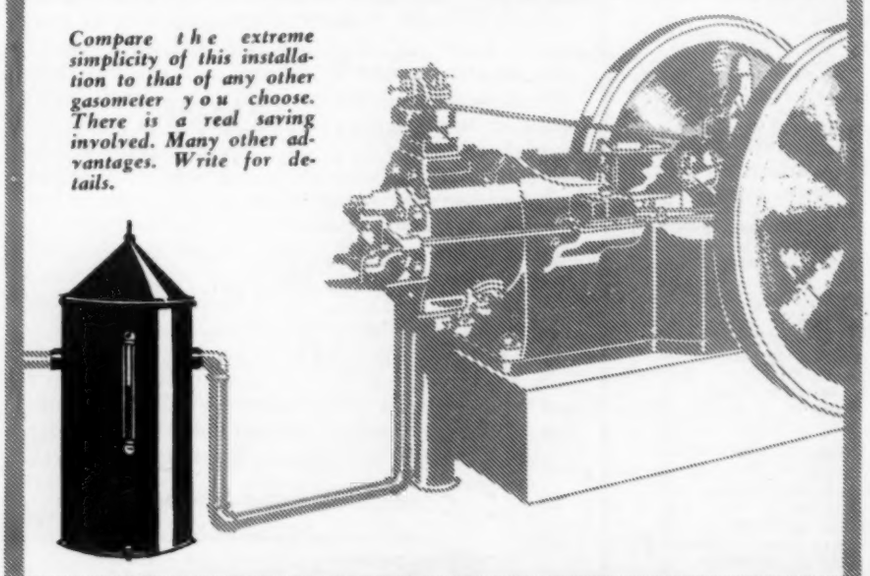
Compare the extreme simplicity of this installation to that of any other gasometer you choose. There is a real saving involved. Many other advantages. Write for details.



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ROTARY SUPPLY COMPANY, *Oil Well Specialties*

766 KOHLER STREET, LOS ANGELES, CALIFORNIA

ROSCO THE MODERN GASOMETER

ARKANSAS

OUACHITA COUNTY—

Little Fay Oil Co.'s Robertson 7, 25-15-16		25	2057

NORTH LOUISIANA

BOSSIER PARISH—

Wm. Gross, Hunter 5, 14-16-12		¶½	1959
Nat. Gas & Prod. Co., U. S. Gov't 1-31-23-11		¶42	3069

EAST CARROLL PARISH—

Palmer Corp., O'Brien 1, 7-19-11e		¶51	2354

OUACHITA PARISH—

Palmer Corp., Cole 4, 26-20-4e		¶5	2176

SOUTH LOUISIANA

EVANGELINE—

E. L. Meyers, Arnaudet 2		*	1890

TEXAS

TEXAS GULF COAST

BIG CREEK—

Gulf, Davis 25		125	3025

BLUE RIDGE—

H. R. Cullen, Luscher 1		*	5190
Davison 2		1500	3960

GOOSE CREEK—

Humble, Simms Smith 73		700	6159

HULL—

Republic Prod. Co., Dolbear 70		1000	2665
Dolbear 104		2000	2190

PIERCE JUNCTION—

Moody Corp., Settegast 1		*	3770

SPINDLE TOP—

Gulf, Marrs-McLean A-18		65	5445

SOUTHWEST TEXAS

DALE FIELD—

The Texas Co., Lackey 7		5	2220
Morgan et al, Osteen 2		*	2205
Adams & Lyles, Moore 1		120	2250

WEST TEXAS

HOWARD COUNTY—

F-H-E Oil Co., Roberts-4-A		30	1856

TEXAS PANHANDLE

CARSON COUNTY—

Empire Gas & Fuel Co., Noel 1		¶30	2667
Gulf Prod. Co., W. E. Cobb 1		¶42	2651
Marston Oil Co., J. L. Noel 1		260	3212
Skelly Oil Co., H. Schafer 8		75	3250

GRAY COUNTY—

Scott & Travis, Chapman 1		*	2895
The Shamrock Co., Clayton-Chapman 1		10	3140

HUTCHINSON COUNTY—

Gulf-Panhandle Ref. Co., et al, Dial 41		100	2891
Dial 40		180	3047

CENTRAL WEST TEXAS

BROWN COUNTY—

Amerada Pet. Corp., Plummer 1		*	1314
Baker & Hodge, Eubank 1		*	1220
Brownwood Prod. & Ref. Co., Williams 1		*	1813
Caldwell Bros. et al, Caldwell 1		¶½	725
Conway Bros. et al, Newton 1		*	1351
Cranfill & Reynolds, Kellar 2-A		15	1210
Denninger & Empire, Culbertson 1		*	1562
Humble O&R Co., Kilgore 19-B		*	1200
Midland Oil Co., Butler 3		115	1281
Mid-Sun Oil Corp., Cross 1		*	1155
Wagley et al, Cox 1		*	1560

CALLAHAN COUNTY—

Bridwell & Heydrick, Stewart 1		*	400
Farlyn Oil Co., Snyder 1		*	1100
Manhattan Oil Co., Smart 1		†	830

COLEMAN COUNTY—

Continental Unit, Overall 1-C		65	1621
Moutray Oil Co., Padgitt 1		*	3575
Roth & Faurot, Sealy-Smith 3		¶10	2645
Selby Oil & Gas Co., Dodgins 1		*	2750

EASTLAND COUNTY—

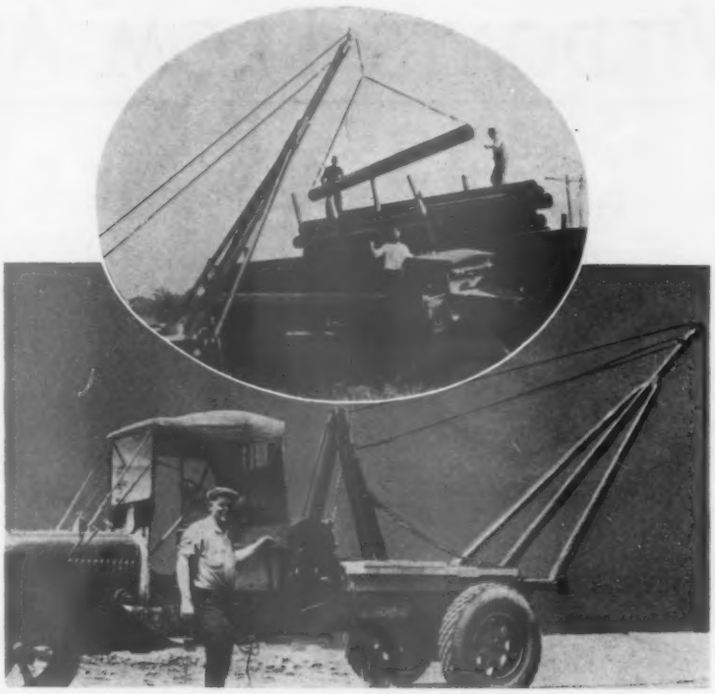
Applegate et al, Cunningham 3		*	3500
W. Harbin et al, Turner 1		¶2½	1272
Mays et al, Woods 1		*	1625
Parsons et al, Blackwell 14		*	3056

SHACKELFORD COUNTY—

Roeser-Pendleton, Inc., et al, Cook 59-A (Sec. 60)		75	1168
Cook 2-A (Sec. 61)		150	1360
Cook 3-A (Sec. 61)		*	1274
T. M. Smart et al, Hammond 1		*	1930
L. B. Tannehill et al, Matthews 3 (Sec. 34)		150	1169

Company, Well and Location	Initial Production Bbls.	Depth
STEPHENS COUNTY—		
Belva Oil Co., Tarrant 1	*	3945
NORTH TEXAS		
ARCHER COUNTY—		
L. T. Burns et al, Wilson 1-G	*	1556
Consolidated Oil Co. & Humble, Campbell 1	*	1590
Consolidated & McLaughlin, Netherton 1	*	1600
Frank Hutcheson et al, Fee 2	*	1203
C. E. McCutchen et al, Perkins 6	15	1040
Moran Drilling Co., Pa key 1	*	1804
Petroleum Prod. Co., Wilson 6-E	60	1583
Wilson 1-F	*	1610
Texas Co. & Grisham, Taber 1	*	1552
ELECTRA—		
J. S. Bridwell et al, N. C. Griffin 1	*	2218
Ryan Pet. Corp., Nance 94	18	1236
The Texas Co., Waggoner 351	*	2250
JACK COUNTY—		
Christie Bros. et al, Jones 4	*	2046
S. H. Jackson et al, Sartin 1	*	275
K-M-A & IOWA PARK—		
Coleman & Coppock, K. & K. 10	35	856
K. & K. 2 (Lot 5)	15	678
Holbrook & Wood, K. & K. 20	30	869
Kemrow Prod. Co., Chilson 1	*	812
MONTAGUE COUNTY—		
Pure Oil Co., Loy 6	35	807
WILBARGER COUNTY—		
J. S. Cosden & Co., Waggoner 19-B	140	2303
Waggoner 20-B	200	2298
Fain-McGaha Oil Corp., Waggoner 1-S	190	2374
Waggoner 1-T	*	1298
Phillips Pet. Co., Brady-Waggoner 1	100	2343
Waggoner 8-HH	140	2308
The Texas Co., Waggoner 2-C	55	2335
Waggoner 2-F	*	2658
Waggoner Ref. Co., Waggoner 2-F	†	2535
YOUNG COUNTY—		
Allen & McKee, Bratcher 1	*	603
Bullington-Lee & Pendleton, Boone 4	40	491
Cunningham et al, Hawkins 9	40	534
Kleiner et al, Langston 8	*	610
Langston 9	150	585
Langston 2-A	3	596
McMeans et al, Sparks 1	*	552
Pemeta Oil Co., Scott 1 ....¶18 and	70	3949
Pennell Oil Co., Boone 8	35	535
Prairie O&G Co., Kunkel 2	*	1165
Reid & Wootten, Poole 1	*	815
Riggs et al, McKinley 9	40	519
Shappel Oil Co., Johnson 10	10	531
Stafford et al, Dyer 1	*	700
The Texas Co., Stewart 6	5	800
Wichita Prod. Co., Hamilton 3	*	1030
MOUNTAIN STATES		
MONTANA		
KEVIN-SUNBURST—		
Radford Oil Co., 2, 8-34-1w	150	1360
Radigan-Hungerford, Adams 2, 12-34-2w	50	1363
California Co., Moe 15, 28-35-2w	800	....
PONDERA—		
J. W. Elliott Drlg. Co., nw 17-24-4w	40	2086
WYOMING		
Midwest Ref. Co., Midwest Oil Co., se 27-40-79	138	2496
OREGON BASIN—		
Orchard Oil Co., 28-50-100	100	3890
Ohio Oil Co., Baston 1, 6-50-100	250	3805
COLORADO		
WELLINGTON DOME—		
Union Oil Co. of Calif., Gault-Piatt-Puleston 1, 7-9-68	427	4453
RANGELY—		
Midwest Ref. Co., Rangely 2, 30-2n-102	*	3473
FLORENCE—		
Continental Oil Co., Dalfior 1, ne 3-19-70	15	2265
Bromwell 1, se 3-18-70	10	2095
Batis & Dickason, Weinheim 1, sw 3-19-70	100	1649

Oil Well Supply Company has removed its general offices, formerly located at 215 Water Street, to the Clark Building, Seventh Street and Liberty Avenue, Pittsburgh. The mailing address remains the same—P. O. Box 91.



"This Crane Saved Us $400.00 PER DAY"

—Keiser Transportation Co.

Loading from car to truck 3 to 4 joints of 20" casing per minute, the Hobbs truck crane increases by four times, the loading speed of any job. Contractors are using this crane to save hours of loading time each day . . . thousands of dollars in money each week . . . and cut to a minimum accidents and wear and tear on equipment. Keiser Transportation Company is a typical example.

The Hobbs heavy duty (shown above) is operated by a power winch, driven by the truck's motor. The crane capacity is limited only to the weight of the front part of the truck and the angle at which the mast is operated. Jacks are provided to take the strain off the rear springs.

Type "2" may be installed or demounted in 15 minutes and when not in service the truck used for regular work. Type "3" is bolted permanently to the truck's body. Today, write, wire or telephone for complete information and prices.

Truck Equipment

Trailers *Truck Tracks*

Hand and Power Winches

HOBBS MANUFACTURING COMPANY

FT. WORTH, TEXAS

WILDCATS FROM ALL SECTIONS

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
PECOS COUNTY—		
Benedum-Trees et al, Corder 1	†	494
REAGAN COUNTY—		
Skelly Oil Co., et al, University 2..	*	3158
RUNNELS COUNTY—		
Gibson-Johnson, et al, Serratt 1	*	3250
Swensondale Oil Co., Werner 1	*	3445

ANDREWS COUNTY—Deep Rock Oil Co.'s Harris 1, elev 3173 ft, top salt 1705 ft, making gas, dr 3025 ft.

BORDEN COUNTY—Dixon Creek Oil Co.'s Clayton-Jackson 1, elev 2606 ft, top lime 2940 ft, sd hfw 3550 ft. E. L. Doheny et al's Koonsman 1, lcn.

BREWSTER COUNTY—Cowden-Cole et al's Jackson-Harmon 1-A, dr 305 ft. Wilcox & Anderson's Gage 1, elev 4320 ft, dry after shot 160 qts 2050-2100 ft.

CONCHO COUNTY — Douglas Oil Co.'s Harral 1, dr 545 ft. Sartain Oil Co.'s Evridge 1, sd 300 ft.

CRANE COUNTY — C. C. Duffey et al's Cowden 1, rig. Gulf's Waddell 4, dr 995 ft. J. K. Hughes Dev. Co. et al's State Bank Fee 1, dr 155 ft. Humble's University 1, top salt 1035 ft, dr 1965 ft. T-P Coal & Oil Co.'s University 1, rig.

CROCKETT COUNTY—George H. Anderson & P. H. Williams' University 1, elev 2610 ft, top salt 990 ft, top lime 2000 ft, sd 2008 ft. The California Co.'s Powell 1, dr 135 ft; Powell 2, rig. Dixie Oil Co.'s Thompson 1, swab 35 bbls fluid after shot, td 1130 ft. W. W. Donnelly et al's Massie 1-A, dr 140 ft; Shannon 1-B, rig; Todd 1, dr 1255 ft. Gulf Prod. Co.'s Powell 3-D, dr 140 ft; Thompson 1-A, top salt 420 ft, dr 685 ft. Grayburg Oil Co.'s Halff 8, top salt 475 ft, cmt cas 1080 ft. Henshaw & McMan O&G Co.'s Owens 1, elev 2769 ft, top salt 1140 ft, top lime 2055 ft, sd 4130 ft. Humble & Marland's Powell 4-B, dr 425 ft. McMan & Amerada's Pet. Corp.'s Powell 1, rig. Marland & Pecos Oil Co.'s University 1, set cas 550 ft. Renee Oil Co.'s University 1, spd and sd. Republic Prod. Co.'s Powell 1-B, sd 475 ft. W. R. Simmons & Marland's University 1, elev 2522 ft, top salt 875 ft, sd 1130 ft. Taylor-Link Oil Co. & Kirby's Powell 2, top salt 1070 ft, dr 1305 ft; L. P. Peck 1, rig. Tidal Oil Co.'s University 1, dr by junk 400 ft. Transcontinental Oil Co.'s Atwood 1, elev 2555 ft, dr 490 ft. Whonlich & Co.'s Halff 1, sd 880 ft. World Oil Co.'s Schneeman 1-B, elev 2663 ft, dr 3050 ft. F. P. Zoch et al's University 1, top salt 515 ft, top lime 1505 ft, dr 1575 ft.

CULBERSON COUNTY — Deep Rock Oil Co.'s Dettis 1, machine. Dittman Drilling Co.'s Miller 1, sd 1767 ft. J. M. Hickey et al's Finley 1, dr 1210 ft.

JEFF DAVIS COUNTY — Humble O&R Co.'s C. Flores 1-A, elev 4239 ft, dr 4965 ft. Sam F. Means & G. M. Ball's J. Z. Means 1, fsh 2767 ft.

ECTOR COUNTY—Texas Co. & Cosden & Co.'s Connell 6, elev 2876 ft, top salt 950 ft, top lime 3169 ft, dr 3195 ft.

EL PASO COUNTY—C. E. Sillix et al's Malone 1, bad hole 265 ft.

FISHER COUNTY—Cranfill & Reynolds & Sun Oil Co.'s T. Willingham 1, spd and sd. R. W. Rainey et al's Marberry 2, elev 1929 ft, top lime 2995 ft, sd 3245 ft. Sinclair O&G Co.'s Steele 1, elev 1902 ft, dr 2990 ft.

GARZA COUNTY—Emerald Oil Co.'s J. M. Boren 3, elev 2363 ft, dr 3985 ft. Latimer & Waggoner's Cross 1, lcn. Marland Prod. Co.'s Pippen 1, dr 2860 ft.

GLASSCOCK COUNTY — Meriwether Oil Co.'s L. S. McDowell 2, elev 2522 ft, top salt 1000 ft, sd 2250 ft. Roxana's Boston 1, dr 515 ft. World Oil Co.'s McDowell 1-B, rig.

TOM GREEN COUNTY — Tinker et al's Jones 1, dr 80 ft. Fitzgerald et al's Bennett 1, sd 1955 ft. P. H. McLaughlin & Rridge's Holder 1, dr 940 ft. R. M. Lasater & W. E. Newton's Roach 1, materials.

HOWARD COUNTY—Amerada & Rycade Oil Corp.'s Roberts 1, lcn; Stewart 1, lcn. Bristow & Merrick's Hooks 5, sd 1574 ft; Roberts 1, elev 2757 ft, top lime 2086 ft, dr 2955 ft. Cosden & Co.'s Roberts 1-A, sd 253 ft; Roberts 2-A, lcn. W. W. Donnelly et al's Clay 1, spd and sd; Martin 1, dr 3305 ft. F-H-E Oil Co. et al's Roberts 1-C, sd 1960 ft; Roberts 3-D, elev 2765 ft, top lime 2105 ft, sd 2550 ft. Godley O&G Co.'s Hooks 3, cmt cas 1701 ft. Gulf's Clay 1, sp. Green O&R Co.'s Clay 1, sd 985 ft. Henshaw et al's Eason 1, co 1925 ft; Settles 1, sd hfo 2519 ft. Virgil Hicks & Marland's Read 1, sp and sd. Lockhart & Co.'s Roberts 2, lcn. Magnolia Pet. Co.'s H. Hyman 1, elev 2360 ft, dr 3265 ft; Roberts 4, elev 2704 ft, co 1035 ft; Roberts 5, sd hfo 2550 ft; Roberts 7, 2769 ft, dr 1410 ft; Roberts 8, dr 250 ft; M. H. O'Daniel 2, lcn. Marland & Texon's Settles 2-A, testing, hfo at 1332-68 ft. Mays-Nixon & Co.'s Flowers 1, elev 2497 ft, sd 2517 ft. Owen-Sloan Oil Co.'s Roberts 4, elev 2744 ft, sd 1990 ft. Pure Oil Co.'s Chalk 4, dr 1605 ft. Sun Oil Co.'s Settles 2, dr hfw 1380 ft. Tate-Weekly & Tubbs' Roberts 4, elev 2739 ft. Bert Weekly et al's Roberts 1, sd 3505 ft.

HUDSPETH COUNTY—Western States Oil Co.'s Gardner-Mosley 1, crooked hole 2255 ft; S. W. Moore 1, dr 2015 ft.

IRION COUNTY — B. A. Cline et al's Thompson 1, lcn. Empire G&F Co.'s Sawyer 1, materials. Kimbrough & Tuel's Nutt 1, dr 750 ft. Moore & Kenny's Tankersley 1, dk. L. P. Powell et al's Horney 1, dr 330 ft. F. E. Webb et al's Nutt 1, elev 2354 ft, ur 1165 ft. West et al's Suggs 1, spd and sd.

JONES COUNTY—Hucony Gas Co. et al's Tiner 1, dr 2200 ft. Hurley Oil Co.'s W. L. Gunther 1, lcn. Phillips Pet. Co.'s Winters 6, dr 3070 ft. Roeser-Pendleton & Stebbins O&G Co.'s Higgs 2, spd and sd. Teas & Wheeler's H. Sayles 1, sd 1385 ft.

KENT COUNTY — J. S. Cosden & Co.'s Bilby 1, materials.

KING COUNTY—Humble's Pitchfork 1, sd 4035 ft. Texas Co.'s Johnson 1, rig.

LOVING COUNTY — Deleware Oil Co.'s Lockhart-Ramsey 1, top Deleware 4320 ft, co after shot, td 4426 ft. Lockhart & Bros. et al's Bowers-Wells 1, dk; Hubbard 1, dk; Fee 1, sd 2400 ft; Lepp 2, elev 2651 ft, dr 3945 ft. Hadlock Oil Co.'s Russell 2, co 850 ft.

LYNN COUNTY—Elpo Oil Co.'s Nevels 1, sd 2575 ft.

MARTIN COUNTY — Phillips Pet. Co.'s Slaughter 1, ur 880 ft.

MENARD COUNTY — Carpenter & Robbins' Kothman 2, sd 620 ft. Moody Corp.'s Allison 1, elev 2053 ft, dr 1785 ft. Panhandle Ref. Co.'s Eckhardt 1, dr 250 ft. Renfro et al's Davis 1, sd 385 ft. Sabiens & Bevans' Wilhelm 1, spd and sd. Sorrell et al's Wilhelm 1, spd and sd.

MIDLAND COUNTY—Gholson et al's Moreland 1, sd 3510 ft. O. H. Shoup et al's Parks 1, elev 2871 ft, top salt 1740 ft, dr 2245 ft.

MITCHELL COUNTY — Owen-Sloan Oil Co.'s G. M. Boren 1, dr 550 ft.

PECOS COUNTY — Amerada Pet. Corp.'s Dillon 1, dk. Geo. H. Anderson et al's University 1, elev 2801 ft, top salt 1030 ft, top lime 1715 ft, sd 1880 ft. Alexander & Lyles' Sellman 1, spd and sd. Bateman-Price et al's Pecos River Bed 1, elev 2227 ft, dr 275 ft. Benedum & Trees' Corder 1-A, skid rig. Buell & Hagan's Pryor 1, elev 2930 ft, top salt 1445 ft, sd 2508 ft. Cosby Oil Co.'s Smith 1, fsh 230 ft. Diamond Pet. Co.'s Blackstone-Slaughter 1, dr 670 ft. M. Z. Dibble et al's Bonebrake 1, elev 2555 ft, sd 1170 ft. Ditto Oil Co.'s Montgomery 1, spd and sd. Bob Elmore et al's M. Holmes 2, elev 2150 ft, dr 1425 ft. Everett et al's Fields 1, sd 1015 ft. Furman Oil Co.'s McNear 1, lcn. Mays-Nixon Co.'s Perry 1, dk. McDonald & Stanley's Parsell 1, spd and sd. Mid-Kansas O&G Co.'s Pryor 1, elev 2790 ft, top salt 1465 ft, sd 3275 ft. Olean Pet. Co.'s Sherbino 1, elev 3027 ft, top salt 1173 ft, dr 2260 ft. Phillips Pet. Co.'s Heyman-Nutt 1, elev 2943 ft, dr 735 ft. Roxana Pet. Corp. & Kirby's University 1, elev 2620 ft, re-set cas 1270 ft. Southern Crude Oil Purch. Co.'s Scharbauer 1, elev 2680 ft, dr 1190 ft. B. J. Spikes et al's Brown 1, elev 2387 ft, sd 655 ft. Transcontinental's University 1, elev 2543 ft, dr 2495 ft. Vacuum Oil Co.'s Elsinore 1, elev 3554 ft, dr 2860 ft. World Oil Co.'s M. Cerf 1, elev 3435 ft, ur 3255 ft; Kloh 1, elev 2810 ft, re-set cas 1335 ft.

PRESIDIO COUNTY—Empire et al's Tootle 1, dk.

REAGAN COUNTY—The California Co.'s University 4, elev 2895 ft, top salt 1340 ft, top lime 3030 ft, bailed 22 bbls oil and some water at 3093-98 and 3102-06 ft. Mark Curtis & Moody Corp.'s Walters 1, dr 550 ft. Roxana Pet. Corp.'s University 1, top salt 1120 ft, dr 1790 ft. Texon's University-McBurnett 1, dr by junk 380 ft; University 1-B, re-bldg rig, td 8220 ft.

REEVES COUNTY—Exploration Co.'s Kinney 1, elev 2847 ft, sd hfw 2845 ft. Grisham-Hunter & Cosden & Co.'s Conner-Rathje 1, elev 2667 ft, top salt 1037 ft, dr 3980 ft. McRobie et al's Bell 1, set cas 450 ft. D. R. Thompson et al's Eddins 1, elev 2719 ft, sd 5499 ft.

RUNNELS COUNTY — Agnew & Fields'

Increased Electric Power

Cody, Wyo.—Increased demand has made necessary the installation of three more transformers at the No. 1 sub-station of Oil Fields Power Company in the Oregon Basin field. Each is to have k.v.a. capacity. This will increase the No. 1 station's capacity to 2000 horsepower. That bank of 150 k.v.a. transformers now in use at the No. 1 station will be moved to station No. 2, located in the south end of the field; it will then have 1200-horsepower capacity.

A third sub-station is being installed a mile east of the Chicago, Burlington and Quincy Railroad depot at Cody, and a line is to be run to the vicinity of the station to care for the lighting and power demands of the Oil Well Supply Company, the Continental Supply Company, the National Supply Company, the Marion Machine Foundry & Supply Company, the Great Northern Tool & Supply Company, the Olsen Elevator Company and a number of residences recently built in the vicinity. The line will, at the same time, supply the loading racks of the Illinois Pipe Line Company.

There are five rotary rigs and one cable tool outfit now using electric power in the field; it is expected that two more cable tool outfits and one rotary will be using electricity before the end of June.

Illinois Pipe Line Company will install another pumping station on section 2-50-100, in the southern end of the field, work to be started at once. The location is said to be such that production from all wells drilled in the southern part of the field will gravitate to the station to be then forced to the company's north pumping station and thence into the pipe line which connects the field with rail head at Cody.

Oil Well Supply Company, according to report, will dismantle its machine shop at Casper, which is electrically equipped, and move it to the Oregon Basin field. Power for its operation will be furnished by Oilfields Power Company.

Parkersburg

HAS SERVED THE OIL FIELDS OF THE WORLD FOR THIRTY-NINE YEARS

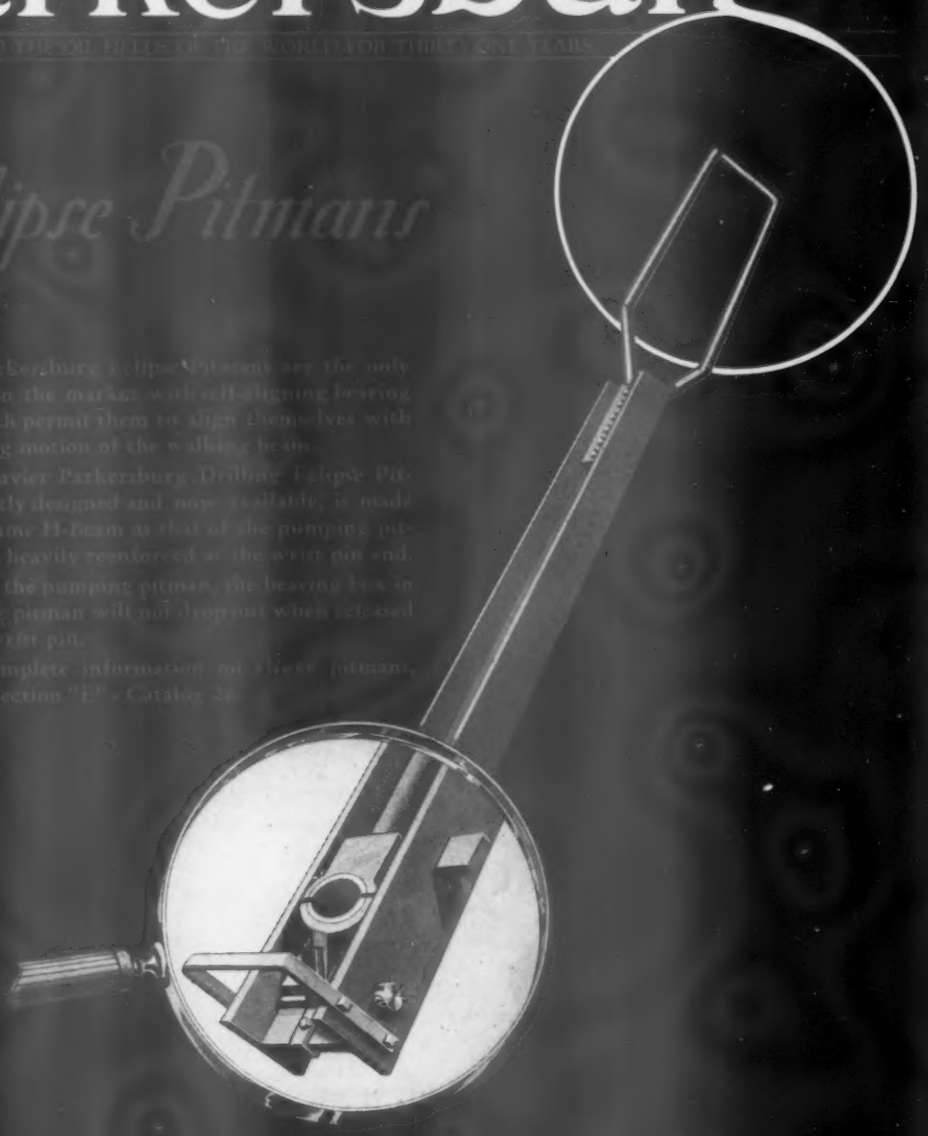
Eclipse Pitmans

THE Parkersburg Eclipse Pitmans are the only ones on the market with self-aligning bearing boxes, which permit them to align themselves with the weaving motion of the walking beam.

The heavier Parkersburg Drilling Eclipse Pitman, recently designed and now available, is made from the same H-beam as that of the pumping pitman, but is heavily reinforced at the wrist pin end.

Unlike the pumping pitman, the bearing box in the drilling pitman will not drop out when released from the wrist pin.

For complete information on these pitmans, write for Section "E", Catalog 24.



Parkersburg Products

The PARKERSBURG RIG & REEL COMPANY

PARKERSBURG EQUIPMENT THE STANDARD FOR COMPARISON THE WORLD OVER

Say you saw it in The OIL WEEKLY

Russell 1, dr 1335 ft. Gibson & Johnson's Rainwater 1, rig. H. L. Griswold et al's Willingham 1, dr 1780 ft. Hamilton et al's Spill 1, materials. Henry B. May et al's Schneider 1, elev 1666 ft, dr 1910 ft. Marland Prod. Co.'s Russell 1, elev 1845 ft, dr 2445 ft. Marland & E. L. Smith Oil Co.'s Herring 1-A, dr 1690 ft. R. B. Summers et al's Reese 1, dr 1230 ft. Vacuum Oil Co. et al's Flannagan 1, sd 1762 ft; Fowler 1, elev 1706 ft, fsh 1570 ft. Robert Watchorn et al's King 1, elev 1660 ft, making gas, dr 3680 ft.

SCHLEICHER COUNTY — Long Bros. et al's Williams 1, rig.

STERLING COUNTY—Manhattan Oil Co. et al's Ellwood 1, rig.

STONEWALL COUNTY — Henshaw Oil Corp.'s Moore 1, dr 1755 ft.

TERRELL COUNTY—Champlin Ref. Co.'s Carter 1, elev 2884 ft, sd 2540 ft. Deep Rock Oil Co.'s Noeltke 1, elev 2405 ft, top lime 1130 ft, dr 2615 ft. Humble O&R Co.'s University 1, elev 2284 ft, dr 3620 ft. Milham Corp.'s Bassett 1, elev 2270 ft, sd 2409 ft.

UPTON COUNTY—Atlantic Oil Prod. Co. et al's Elkins 1, elev 2741 ft, top salt 1590 ft, dr 2700 ft. Curtis-Hults et al's Giddings 2, sd 975 ft.

WARD COUNTY — E. H. Devore et al's Black 1, spd and sd. Estex Oil Co.'s Estes 1, top salt 645 ft, dr 1500 ft. Denver Prod. & Ref. Co.'s Cherokee Fee 1, dr 925 ft. Rector Oil Co.'s State Fee 1, dr 380 ft. Selby O&G Co. et al's Dooley-Rogers 1, elev 2661 ft, dr 3170 ft.

WINKLER COUNTY—Amerada Pet. Corp.'s Walton 1, elev 2833 ft, making gas, dr by tools 2502 ft. V. T. Bolin & Co. et al's Brown 1, elev 2847 ft, top salt 1302 ft, dr 2850 ft. Danciger O&R Co. et al's Sealy 1, top salt 1085 ft, top lime 3115 ft, 1500 ft oil and water in hole at 3170-3240 ft, set cas. Gibson-Johnson et al's Leck-Daugherty 1, elev 2883 ft, top salt 1980 ft, top lime 2687 ft, making 140 and lots water with oil, td 3167 ft. Humble's Walton 1-B, dr 1735 ft. Roxana & Llano Oil Co.'s Scarborough 3, dr 120 ft. Sid Richardson et al's Stockton Cattle Co. 1, rig. Southern & Westbrook's Hutchings 1-T-90, sidetracking stem, td 2706 ft. Marland Prod. Co.'s (New Mexico) Eaves 1, mudding off gas 2927 ft; Seideman 1, dr lime 3505 ft; Sholes 1, salt at 1045-60 ft, dr 1290 ft.

TEXAS GULF COAST

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BRAZORIA—		
Stanfield & Myers, McNeil 1, Hinckle Ferry	*	1420
FORT BEND COUNTY—		
Gulf, Moore 15, Moore's Field	*	4475
Sun Oil Co., E. C. Farmer 1, Boling	*	2100
LIBERTY COUNTY—		
Sun Oil Co., Singleton 1, S. Liberty	*	2065
Cunningham 1, S. Liberty	*	....
MATAGORDA COUNTY—		
Gulf, Sanborn 6, Hawkinsville	*	875

AUSTIN COUNTY — Humble's Wilson 1, Raccoon Bend, swabbing at 3625 ft. L. H. Weadock's Ward 1, sd 2020 ft.

BRAZORIA COUNTY — Roxana's Allen Bernard 1, Allen dome, pumping 5 bbls at 5337 ft; Allen 4, Allen dome, flowing 115 bbls through ¾-in choke at 5108 ft; Randon 1, Allen dome, td 4942 ft, sdtrk at 4905 ft; Poole A-2, Allen dome, lcn. Gulf's Perry 4, Stratton Ridge, dr 725 ft. Stanfield & Myers' McNeil 1, Hinckle Ferry, abnd at 1420 ft. Leonard Pet. Co.'s Wisdom 3, Damon Mound, dr 1938 ft, lime. McNellie Oil Co.'s Bartlett 1, West Columbia, dr 2188 ft, gbo.

CHAMBERS COUNTY—Pure Oil Co.'s Lost River 1, Lost Lake dome, sd 3670 ft; Old River 1, Lost Lake dome, ru; Trinity River 1, Lost Lake dome, ru; Little Lost Lake 1, Lost Lake dome, dredging canal; Lost River Lake 1, Lost Lake dome, dk; Cut-Off Bayou 1, Lost Lake dome, dk. R. L. Bartlett's Fisher 1, Barbers Hill, pulling liner.

COLORADO COUNTY—Rich Oil Corp.'s Von Rosenberg 1, 2½ mi ne Columbus, dr 2680 ft, shale. Deal et al's Tanner 2, 3 mi s Glidden, sd 1025 ft. Johnson Bros.' Beckeet 1, G. W. Smith sur, ru.

FORT BEND COUNTY—Sun Oil Co.'s E. C. Farmer 1, Boling, abnd in salt at 2100 ft. E. C. Farmer, Boling, ru; Kaspereck 3, Boling, dr 2650 ft, lime; H. R. Farmer 6, Boling, dk. Gulf's Trone 8, Long Point, dr 1500 ft; Wolf 9, Long Point, ru; J. M. Moore 15, Moore's Field, abnd in lime after testing salt water at 4475 ft; Moore 16, Moore's Field, lcn. Humble's Brazos Farm 1. Dewalt dome, dr 2128 ft, gbo; Sugarland Industries 1, Dewalt dome, flowing 225 zzls; Sugarland Industries 2, Dewalt dome, ru. Vacuum Oil Co.'s Levy 1, Thompson, dr 1650 ft.

HARRIS COUNTY—Juanita Oil Co.'s Kitsman 1, 3 mi n Cypress, sd 2010 ft. J. A. Hautier's Grouse 1, G eens Bayou, lcn. Hunt et al's Lobit 1, 4 mi n Goose Creek, td 2150 ft. Torsen et al's Stewart 1, 4 mi sw Genoa, lcn. Humble's Warren 4, Hockley, dr 1448 ft, sand and shale. Cedar Bayou Oil Co.'s Johnston 1, 8 mi n Goose Creek, ru.

JEFFERSON COUNTY — Deep Test Oil Co.'s McFaddin 1, 4 mi ne Spindle Top, sd 2175 ft. Southern Spindle Top O. & Dev. Co.'s Young 1, 1 mi w Nederland, sd 3425 ft. Port Arthur O. & Dev. Co.'s West 4, Westbury, sd 4145 ft. A. M. Deems et al's Mashman 1, 1 mi s Voth, dr 1000 ft, sand. Traders Oil Co.'s Cissell 1, Spindle Top, dr 4700 ft, rock. The Texas Co.'s Gladys City 1, Spindle Top, reaming at 4600 ft. Beaumont Oil Co.'s Tyrrell 1, 2 mi w Brooks, dk.

LIBERTY COUNTY—Barlow et al's Minchcliff 1, 2½ mi ne Cleveland, sd 2215 ft. The Texas Co.'s Staiti 9, S. Liberty, prep to pump at 3405 ft; Staiti 10, S. Liberty, dr 3200 ft, gbo; Staiti 11, S. Liberty, dk; Pickeet 1, nw extension S. Liberty, top of cap rock at 3370 ft; Green 4, nw extension S. Liberty, dr 2275 ft, shale and lime; Sun Oil Co.'s Cunningham 1, nw extension S. Liberty, abnd lcn; Singleton 1, nw extension S. Liberty, abnd lcn; Singleton 1, nw extension S. Liberty, abnd lcn; Singleton 1, nw extension S. Liberty, abnd in salt water at 2065 ft. Humble's Welder 8, S. Dayton, lcn. Humble's Sterling 1, Moss Bluff, ru. Sun Oil Co.'s Kyle 1, Moss Bluff, ru. Big Dome Interests' Finley 1, 2¾ mi nw Hardin, dr 2225 ft. Harrison Oil Co.'s Quintette 3, N. Dayton, dr 1000 ft, gbo.

MATAGORDA COUNTY—Matagorda County Dev. Co.'s Hawkins 1, Bay City, sd 1985 ft. Gulf's Sanborn 6, Hawkinsville, abnd at 875 ft; Vinyard 1, Hawkinsville, coring at 3267 ft.

WALLER COUNTY — John Young et al's Young 1, 10 mi s Hempstead, dr 1200 ft. gbo.

SOUTHWEST TEXAS

Completions

Company, Well and Location	Initial Production Bbls.	Depth
WEBB COUNTY—		
Killam-Simms, Bruni 2	400	2176
Company, Well and Location	Initial Production Bbls.	Depth
Magnolia, Valdez 1, sec 754	300	....
O. W. Killam, Bruni 8	1300	....
VAL VERDE COUNTY—		
Magnolia, Whitehead 1	*	6725

CALDWELL COUNTY—Joe Bruner et al's Wilson 1, standing. Radcliff et al's Briscoe 1, 3 mi ne Luling, standing. United North & South's Tiller 2, dr 7335 ft, schist; Kelly 1, dr schist 7670 ft. Datex Oil Co.'s August 1, Branyon district, dr 1010 ft, shale. Smith et al's Lancaster 1, Branyon district, dr 2325 ft. The Texas Co.'s Branyon 1, Branyon district, pumping 200 bbls; Medford 1, dr 2300 ft. Edwards lime. Davis et al's Young 1, Branyon district, dr 1685 ft. Dixon et al's Teas 1, Branyon district, dr 2400 ft. Roxana's Medford 1, Branyon district, reaming 2250 ft. Weinert & Carter's Branyon 1, dr chalk 2120 ft. United North & South Dev. Co.'s Branyon 1, dr 2325 ft.

DUVAL COUNTY—National Oil Co.'s Bell 1, standing 2175 ft, gbo. Partee et al's Hahl 1, mvg on. R. Driscoll's Fee 12, spd in.

HIDALGO COUNTY—Dale Smith's Daskan 1, standing 3235 ft. Queen City O. & G. Co.'s American Land & Irrigation Co. 2, 3 mi n Mercedes, standing.

JIM HOGG COUNTY—T. G. Shaw's Jones 1, Hebbronville, sd 2000 ft.

JIM WELLS COUNTY—Cushing Oil Co.'s Perez 1, 3 mi n Alice, sd 1345 ft.

KINNEY COUNTY—Stephens et al's Clamp 1, standing 1030 ft, shale and lime.

LIVE OAK COUNTY—Harper et al's Nichols 1, e Calihan, standing 1170 ft.

MAVERICK COUNTY—Rycade's Chittam 2. Eagle Pass, dr 5500 ft, lime; Chittam 1, td 5630 ft. Ryan Consolidated's India Land Co. 1, 24 mi se Eagle Pass, fsh 4400 ft.

SAN PATRICIO COUNTY—National Oil Co.'s McMullen Sur, 1, sd 290 ft. Pardee Pet. Co.'s Bell 1, w Mathis, sd 2850 ft.

STARR COUNTY—The Texas Co.'s Guerra 1, dr 3465 ft, shale.

VAL VERDE COUNTY — East Del Rio's Weatherbee 1, standing 3335 ft. Magnolia's Whitehead 1, abnd at 6725 ft. Thraves et al's Wilson 1, standing 1125 ft. Valvert Oil Co.'s Bassett 1, lcn.

SOUTH LOUISIANA

Completion

Company, Well and Location	Initial Production Bbls.	Depth
LA FOURCHE PARISH—		
Gulf, W. H. Stark et al 3, Thibodaux	*	1175

ASCENSION PARISH — Gulf's United Lands Co. 7, Sorrento Dome, dr 1500 ft. Acme Prod. Co.'s DeHaas-Eby 1, Sorrento, dk. Triumph Oil Corp.'s Lacey 1, 1½ mi se Sorrento, dk.

CALCASIEU PARISH — Union Sulphur Co.'s Fee 725, Sulphur Dome, dr 2250 ft, gbo; Fee 726, Sulphur Dome, dr 600 ft, gravel; Fee 727, Sulphur Dome, dr 3325 ft, gbo.

CAMERON PARISH—Pure Oil Co.'s Sweet Lake 2, Sweet Lake, standing at 5100 ft; Sweet Lake 3, Sweet Lake, dr 5900 ft, shale; Sweet Lake 4, Sweet Lake, flowing 200 bbls; Sweet Lake 5, Sweet Lake, coring 5700 ft. La. Land & Explo. Co.'s Calcasieu Lake B-1, ½ mi ne Kelso Bayou dome, dk. Calcasieu Oil Co., Magnolia & Union Sulphur Co.'s Caldwell 2, Kelso Bayou dome, dead; Doiron 2, Kelso Bayou, dr 3225 ft; Watkins 4, Kelso Bayou, set surface cas; Watkins 5, Kelso Bayou, ru. Noble et al's Ellender 1, Hackberry, standing 4490 ft. Roxana's Watkins Est. 2, Black Bayou dist., dredging canal. Yount-Lee Oil Co.'s State Land 9, Hackberry, dr 2850 ft, gbo; State Land 11, Hackberry, dr 750 ft, gbo; State Land 12, Hackberry, lcn; State Land 13, lcn.

IBERIA PARISH—La. Land & Explo. Co.'s Vermilion Bay A-2, dr 1670 ft, rock. Gulf's State Z-5, Loreauville, ru; Broussard et al 2, Loreauville, dr 1300 ft. Jefferson O. & Dev. Co.'s Jefferson Island 2, dr 5610 ft, rock.

IBERVILLE PARISH—Union Sulphur Co.'s Schwing 2, Bayou des Glaise dome, td 3175 ft. Roxana's Wibert 2, lcn.

JEFF DAVIS PARISH—Scroggins et al's Purveiance 1, Welsh, dr 2245 ft. Indiana-La. Oil Co.'s Le Doux 1, dr 920 ft, gb.

LA FOURCHE PARISH—Gulf's Stark et al 3, Thibodaux, abnd at 1175 ft; No. 4, ru.

ST. MARTIN'S PARISH—Rycade's Fee 3, Bayou Boullion, coring 3000 ft; La. State 1, lcn; Martin 1, lcn.

MOUNTAIN STATES

UTAH

DUCHESNE—Midwest Explo. Co. & Utah Southern Oil Co., Earley 1, 13-4-6, dr 4090 ft.

CARBON—Price River Pet. Co., 1, se 16-14s-10e, dr 2685 ft.

GRAND—Utah Oil Refining, Moab Consolidated, Utah Southern, Salt Valley 1, 13-23-21, sp. Utah Southern & Moab Consolidated, Shafer 1, 36-26-20, dr 1210 ft. Navajo Petroleum Co., 2-20-21, rig up.

MILLARD—Beaver Valley Oil Co., Blackrock 1, 20-25s-9w, dr 3180 ft, carrying 4½-in.

NAVAJO RESERVATION—Continental Oil Co., Boundary Butte 1, 31-43-21; fsh tools 4047 ft.

SAN JUAN—Union Oil Co. of Calif., 40 mis se of Moab, spotting lcn. Boulder Knoll O. & G. Co., 1, 17-34-25, dr 2278 ft.

UINTAH—Western Venture Oil Co., Krumvieda 1, 6-5-21, run cas 753 ft. Maude Ellen Oil Co., 28-3-21, dr 1000 ft.

UTAH—Diamond Oil Co., 3, ne 28-8s-4e, sd for repairs.

WAYNE—Texas Prod. Co., Shipley 1, 5-27-14; fsh 2975 ft. Phillips Pet. Corp., 16-27-16, sp 150 ft, fighting cave.

WASHINGTON—Ora L. Hiatt et al, ne 30-43-14w, dr 420 ft. Mid-American Oil Co., nw 17-43-15w, dr 1500 ft. Uzona Oil Co., se 17-43s-15w, susp 390 ft. Uzona Oil Co., 1A, 19-43s-15w, sp and sd. C. E. Cline et al, 2, 27-41s-12w, will resume at 275 ft. C. E. Cline et al, 3, 23-41s-21e, plugged back from 558 ft to 350 ft and shot. Virgina Pet. Corp., 2, ne 23-41s-12w, water intrusion 1557 ft. Zion O. & R. Corp., 3, sw 13-41s-12w, sd 756 ft. Miller & Taylor nw 23-41s-12w, dr 150 ft.

(Continued on Page 136)

Big Waste Brought About by Inefficient Pulling Equipment

Make-shift methods, though apparently cheaper at the start, are expensive in the end; especially manufactured pulling equipment is the solution

The enormous cost of pulling equipment, enormous because most of it is wasteful and unnecessary, is almost unbelievable unless one has made a thorough study of the situation. It is alarming how many are being misled into thinking of the initial cost alone and not giving due consideration to length of life, cost of operation, or the downtime expense, caused by delays in getting repairs for equipment that is not standard and is not backed by reliable service.

The practical kind of winch tractor to buy is one with a large, heavy duty, slow speed engine, built with a surplus of power and constructed so as to handle that power,—the entire machine, including engine, tractor and winch, being manufactured by one company and backed by one service, with branch houses located all over the world. An organization with experience,—no finer could be recommended than one with a reputation of nearly a century in manufacturing power equipment.

It is sound business and sure economy to buy winch tractors from the oldest and largest manufacturers of tractors today, a company that builds a Special Oilfield Tractor complete in its own factory, instead of converting an ordinary farm tractor into oil field equipment.

The Rumely OilPull Winch Tractor has large 7″ main bearings, 3⅛″ diameter crank shaft and 2⅝″ cross head pins, in fact, the cross head pins are as large as the crank shaft on other tractors with winches. The bearings are lubricated by an individual pump to each main bearing and an oil collector ring on the end of the main bearing collects the oil and forces it through the crank shaft to the connecting rods. The surplus oil from the connecting rods lodges in the crank case, the connecting rods dip in this oil and the spray produced thereby lubricates all other working parts in the engine. In addition to this splash system, there is a feature exclusive to the Rumely OilPull Winch Tractor, namely, an individual pump that forces fresh oil at all times in on the top of the pistons, pins and rings. This is made possible by the fact that the cylinders are horizontal, operating with a lateral motion and, fresh oil being forced into the side or top of the cylinder, as the pistons travel back and forth under the tubes, it lubricates them thoroughly from one end to the other. There are grooves cut in the upper sides of the pistons, with holes that go down to the cross head pins. Every time the grove is under the oil line, the oil goes right in on the cross head pins, completely lubricating them.

The OilPull Winch Tractor cools with oil, which keeps an even temperature at all times, removing the necessity of replenishing the water, as on water cooled engines, thereby changing the temperature. There are positively no rust, scaling, liming-up or stopping-up of the engine blocks and radiators, consequently no one knows the life of an OilPull oil-cooled radiator, as the first OilPull Tractor, manufactured 19 years ago, is still working, and that tractor cools just as successfully as a brand new one. It is an absolute impossibility to overheat an OilPull Tractor by pulling, as the harder they pull, the cooler they run. This is taken care of by the governor, the exhaust and carburetor, three features explained in detail in a little pamphlet entitled, "Triple Heat Control," glady mailed upon request.

The tractor is constructed so that the operator sits on a platform at the back end; the winch is on the front end, mounted on a heavy 10″ channel-iron frame, in such a manner that the driver is back out of danger and in a position at all times to see at a glance all the working parts of the tractor, the winch, the line, the derrick floor, and have a direct view to the top of the derrick, thereby making it possible to watch his equipment and take care of it, at the same time avoiding accidents to both equipment and men.

Magnolia Petroleum Co. operating in the Red River Swamps, Harmon, La.

The winch drum is driven direct from the end of the crank shaft by a roller chain, saving the necessity of running two or three sets of gears, planetary clutches, and etc. The clutch is a big, heavy duty shoe clutch mounted on the end of the crank shaft in what is called the belt pulley or clutch pulley. This heavy shoe clutch can easily be taken apart and relined in 10 or 15 minutes, and you do not have to take the whole tractor apart to do it. There is also a brake on this pulley that operates in harmony with the clutch by one lever located at the driver's side. When he pulls back on the lever, he automatically releases the clutch and applies the brake, and when he shoves forward on the lever, he automatically releases the brake and engages the clutch, all with one hand. He does not have to be continuously turning loose the brake with one hand or the clutch with the other to handle a number of unnecessary levers. Forward and reverse are obtained with a jaw clutch mounted on the jack shaft. By shoving the lever forward you engage the right-hand jaw clutch, which is the forward pull. By pulling the lever back you engage the left-hand jaw clutch, which is reverse.

The OilPull Winch Tractor possesses so many advantages, in addition to the features outlined above, that the space provided here must be supplemented by folders, pamphlets and further discussion. But remember this, the OilPull Winch Tractor has more power, larger crank shaft bearings, larger crank shaft on the motor, larger drum shaft, larger drum shaft bearings, larger connecting rods, larger cross head pins and larger pistons than any other tractor made with a winch on it, and it is the only winch tractor manufactured completely in one factory and built especially for oil field work. It has a special feature of not freezing up in the winter nor will it overheat from over-loading in the hottest weather. The speed of the motor is positively controlled by the governor. It is absolutely impossible to disconnect the governor and race the engine and tear it up by speeding, because the governor is built as a part of the tractor, and not as an attachment, and the tractor cannot be operated without it. There are less than one-half the working parts on an OilPull Winch Tractor than on ony other tractor and winch combination.

All these features contribute to the interesting and greatly desired result—*long life*. "Every Rumely OilPull Winch Tractor that has ever been sold is still working." Address all inquiries to

FRED E. COOPER
Special Rumeley Representative and Developer of Oil Field Equipment,
18 S. MADISON, TULSA, OKLA.

CRUDE OIL PRICE QUOTATIONS

CRUDE PRICE CHANGES

Findlay, Ohio, May 18 — Effective at the opening of the market today, The Ohio Oil Company advanced the market price of Kevin-Sunburst, Montana, crude, 15 cents per barrel, making the present price $1.65 per barrel at the wells.

CURRENT POSTINGS

EASTERN STATES

	May 23 1928
New York Transit	$2.80
Bradford District	2.80
National Transit	2.65
Southwest	2.65
Eureka	2.60
Buckeye	2.35
Macksburg	2.80
Gaines	2.60
Somerset	1.45
Cabell	1.35
Ragland	.95
Corning, 35-cent grade	1.45
Corning, 25-cent grade	1.55
Keister	1.10

CENTRAL STATES

Illinois	1.50
Indiana	1.32
Lima	1.55
Plymouth	1.23
Princeton	1.50
Waterloo	1.35
Wooster	1.57

WESTERN KENTUCKY

Posted by Stoll Refining Company for crude from Allen, Warren, Franklin, Davies, Barren, All grades 1.50

MID-CONTINENT

Prairie, Sinclair and Gulf

28 to 28.9 gravity	.96
29 to 29.9 gravity	1.01
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.11
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.19
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.25
36 to 36.9 gravity	1.28
to 37.9 gravity	1.31
38 to 38.9 gravity	1.34
39 to 39.9 gravity	1.37
40 to 40.9 gravity	1.40
41 to 41.9 gravity	1.43
42 to 42.9 gravity	1.46
43 to 43.9 gravity	1.49
44 to 44.9 gravity	1.52
45 to 45.9 gravity	1.55
46 to 46.9 gravity	1.58
47 to 47.9 gravity	1.61
48 to 48.9 gravity	1.64
49 to 49.9 gravity	1.67
50 to 50.9 gravity	1.70
51 to 51.9 gravity	1.73
52 and above	1.76

NORTH AND CENTRAL TEXAS

Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona and Lytton Springs Crude

(Humble Oil and Refining Company and Gulf Refining Company)*

	May 23 1928
Below 25 gravity	.76
25 to 25.9 gravity	.81
26 to 26.9 gravity	.86
27 to 27.9 gravity	.91
28 to 28.9 gravity	.96
29 to 29.9 gravity	1.01
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.11
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.19
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.25
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.31
38 to 38.9 gravity	1.34
39 to 39.9 gravity	1.37
40 to 40.9 gravity	1.40
41 to 41.9 gravity	1.43
42 to 42.9 gravity	1.46
43 to 43.9 gravity	1.49
44 to 44.9 gravity	1.52
45 to 45.9 gravity	1.55
46 to 46.9 gravity	1.58
47 to 47.9 gravity	1.61
48 to 48.9 gravity	1.64
49 to 49.9 gravity	1.67
50 to 50.9 gravity	1.70
51 to 51.9 gravity	1.73
52 and above	1.76

*Humble's postings stop at 44 and above, at $1.52.

NORTH AND CENTRAL TEXAS

(The Texas Company and Magnolia Petroleum Company)*

24 to 24.9 gravity	.76
25 to 25.9 gravity	.81
26 to 26.9 gravity	.86
27 to 27.9 gravity	.91
28 to 28.9 gravity	.96
29 to 29.9 gravity	1.01
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.11
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.19
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.25
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.31
38 to 38.9 gravity	1.34
39 to 39.9 gravity	1.37
40 to 40.9 gravity	1.40

	May 23 1928
41 to 41.9 gravity	1.43
42 to 42.9 gravity	1.46
43 to 43.9 gravity	1.49
44 to 44.9 gravity	1.52
45 to 45.9 gravity	1.55
46 to 46.9 gravity	1.58
47 to 47.9 gravity	1.61
48 to 48.9 gravity	1.64
49 to 49.9 gravity	1.67
50 to 50.9 gravity	1.70
51 to 51.9 gravity	1.73
42 and above	1.76

*Magnolia Petroleum Company posts the schedule below on oil below 30 gravity and from 30 gravity up to 31.9. Beginning with 32 to 32.9, Magnolia's posting is the same as that of The Texas Company.

Below 30 gravity	.75
30 to 30.9 gravity	.90
31 to 31.9 gravity	1.05

Corsicana heavy is $1.00 posted by Magnolia.

SOUTH TEXAS

Mirando	1.00

SOMERSET

Grayburg

Below 33 gravity	1.05
33 to 33.9 gravity	1.07
34 to 34.9 gravity	1.09
35 to 35.9 gravity	1.11
36 to 36.9 gravity	1.13
37 to 37.9 gravity	1.15
38 and above	1.17

GULF COAST

Grade "A" all companies	1.20
Gulf Coast Light Oil, below 25	1.15
25 to 25.9 gravity	1.17
26 to 26.9 gravity	1.19
27 to 27.9 gravity	1.21
28 to 28.9 gravity	1.23
29 to 29.9 gravity	1.25
30 to 30.9 gravity	1.27
31 to 31.9 gravity	1.29
32 to 32.9 gravity	1.31
33 to 33.9 gravity	1.33
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.37
36 to 36.9 gravity	1.39
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.43
39 to 39.9 gravity	1.45
40 and above	1.47

*Humble Oil & Refining Company's postings on Gulf Coast Light stop at 35 to 35.9. Its price on all crudes above 35 to $1.37 per barrel.

Magnolia Petroleum Company's postings stop at 31 to 31.9.

CALIFORNIA CRUDE OIL PRICES AT THE WELL

Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 gallons in fields indicated.)

Gravity (degrees)	Signal Hill	Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Torrance	Richfield	Whittier La Habra	Montebello	Coyote Hill	Santa Fe Springs	Newhall McKittrick Kern River	Midway Sunset Elk Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler
14-14-9	$ .85	$ .85	$ .85	$ .85	$ .85	$ ..	$ .85	$ .85	$ .85	$ .85	$ .85	$ ..	$ .75	$ .75	$ .75	$ .75	$ .75	$ .75
15-15-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
16-16-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
17-17-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
18-18-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
19-19-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75
20-20-9	.85	.85	.85	.85	.85	..	.85	.85	.85	.85	.85	..	..	.77	.77	.77	.76	.76
21-21-9	.86	.86	.86	.86	.86	..	.86	.86	.85	.85	.86	.85	..	.79	.79	.79	.77	.77
22-22-9	.87	.87	.87	.87	.87	..	.87	.87	.85	.85	.87	.85	..	.81	.81	.81	.78	.78
23-23-9	.88	.88	.88	.88	.88	..	.88	.88	..	.85	.88	.85	..	.83	.83	.83	.79	.79
24-24-9	.89	.89	.89	.89	.89	..	.89	.89	..	.85	.89	.85	..	.85	.85	.85	.80	.80
25-25-9	.90	.90	.90	.90	.90	.90	.90	.90	..	.86	.90	.86	..	.87	.87	.87	.81	.81
26-26-9	.92	.92	.92	.92	.92	.92	.92	.92	..	.87	.91	.87	..	.89	.89	.89	.83	.82
27-27-9	.94	.94	.94	.94	.94	.94	.94	.94	..	.88	.92	.88	..	.91	.91	.91	.85	.83
28-28-9	.96	.96	.96	.96	.96	.96	.96	.96	..	.89	.93	.89	..	.93	.93	.93	.87	..
29-29-9	.98	.98	.98	..	.98	.98	..	1.00	..	.91	.95	.93	..	.99	.99	.99	.91	..
30-30-9	1.00	1.00	1.00	..	1.00	1.00	..	..	..	..	..	.95	..	1.02	1.02	1.02	.93	..
31-31-9	1.03	1.03	1.03	..	..	1.03	..	..	..	..	..	.97	..	1.05	1.05	1.05	.95	..
32-32-9	1.06	1.06	1.06	..	..	1.06	..	..	..	..	..	.99	..	1.08	1.08	1.08	.97	..
33-33-9	..	..	..	..	..	1.09	..	..	..	..	..	1.01	..	..	..	1.11	.99	..
34-34-9	..	..	..	..	..	1.12	..	..	..	..	..	1.03	..	..	..	..	1.01	..
35-35-9	..	..	..	..	..	1.15	..	..	..	..	..	1.06	..	..	..	..	..	..
36-36-9	..	..	..	..	..	1.18	..	..	..	..	..	1.09	..	..	..	..	..	..
37-37-9	..	..	..	..	..	1.21	..	..	..	..	..	1.12	..	..	..	..	..	..
38-38-9	..	..	..	..	..	1.24	..	..	..	..	..	1.15	..	..	..	..	..	..
39-39-9	..	..	..	..	..	1.27	..	..	..	..	..	..	..	..	..	..	..	..
40-40-9	..	..	..	..	..	1.30	..	..	..	..	..	..	..	..	..	..	..	..
41-41-9	..	..	..	..	..	1.33	..	..	..	..	..	..	..	..	..	..	..	..
42-42-9	..	..	..	..	..	1.36	..											

"PETRECO" WILL TURN CUT OIL LOSSES INTO PROFITS

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Petroleum Bldg. Houston, Texas

PETRECO

The electrical process for the dehydration of crude oil emulsions

	May 23 1928
MARKHAM	
The Texas Company	
All grades	1.00
LULING	
All grades	1.00
PANHANDLE	
GRAY COUNTY	
(Humble Oil and Refining Company, Magnolia Petroleum Company and Gulf Refining Company)	
Below 27 gravity	.60
27 to 27.9 gravity	.65
28 to 28.9 gravity	.70
29 to 29.9 gravity	.75
30 to 30.9 gravity	.80
31 to 31.9 gravity	.85
32 to 32.9 gravity	.90
33 to 33.9 gravity	.93
34 to 34.9 gravity	.96
35 to 35.9 gravity	.99
36 to 36.9 gravity	1.02
37 to 37.9 gravity	1.05
38 to 38.9 gravity	1.08
39 to 39.9 gravity	1.11
40 to 40.9 gravity	1.14
41 to 41.9 gravity	1.17
42 to 42.9 gravity	1.20
43 to 43.9 gravity	1.23
44 and above	1.26
WHEELER COUNTY	
(Humble Oil and Refining Company and Magnolia Petroleum Company)	
Below 29 gravity	.60
29 to 29.9 gravity	.65
30 to 30.9 gravity	.70
31 to 31.9 gravity	.75
32 to 32.9 gravity	.80
33 to 33.9 gravity	.83
34 to 34.9 gravity	.86
35 to 35.9 gravity	.89
36 to 36.9 gravity	.92
37 to 37.9 gravity	.95
38 to 38.9 gravity	.98
39 to 39.9 gravity	1.01
40 to 40.9 gravity	1.04
41 to 41.9 gravity	1.07
42 to 42.9 gravity	1.10
43 to 43.9 gravity	1.13
44 and above	1.16
CARSON-HUTCHINSON COUNTIES	
(Humble Oil and Refining Company, Magnolia Petroleum Company and Gulf Refining Company)	
Below 31 gravity	.60
31 to 31.9 gravity	.65
32 to 32.9 gravity	.70
33 to 33.9 gravity	.73
34 to 34.9 gravity	.76
35 to 35.9 gravity	.79
36 to 36.9 gravity	.82
37 to 37.9 gravity	.85
38 to 38.9 gravity	.88
39 to 39.9 gravity	.91
40 to 40.9 gravity	.94
41 to 41.9 gravity	.97
42 to 42.9 gravity	1.00
43 to 43.9 gravity	1.03
44 and above	1.06
WEST TEXAS	
(Humble, Gulf, Magnolia, The Marland Company and Southern Crude Oil Purchasing Company)*	
Crane- Upton, Crockett, Pecos and Winkler Counties, all grades	.60

*Gulf does not post in Winkler County; Magnolia posts only in Crane and Upton Counties; The Marland Company, post only in Crane, Upton and Crockett Counties; Southern posts only in Crane, Upton and Winkler Counties.

(Magnolia Petroleum Company)	
Mitchell County	$ .80
Howard-Glasscock County (shallow)	.80
Howard-Glasscock County (deep)	.60
Col-Tex Refining Company	
Howard and Mitchell Counties	$ .80
WYOMING-MONTANA	
Wyoming	
Byron	1.33
Ferris	1.60
Elk Basin	1.33
Grass Creek	1.33
Rock Creek	1.25
Lost Soldier	.95
Lance Creek	1.33
Mule Creek	1.10
Notches	.65
Big Muddy	1.25
Osage	1.33
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.33
Lander	.80
Simpson Ridge	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00
Salt Creek	
Midwest Refining Company	
29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.9 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 and above	1.30
MONTANA	
Sunburst	$1.65
Cat Creek	1.33
Lake Basin	2.20
NEW MEXICO	
Artesia	1.00
Hogback	1.38
CANADA	
Oil Springs	2.02
Petrolia	1.95
LOUISIANA-ARKANSAS	
(All Companies)*	
Homer, Haynesville, Caddo, El Dorado, De Soto and Crichton and Cotton Valley**	
Below 28 gravity	.91
28 to 28.9 gravity	.96
29 to 29.9 gravity	1.01
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.11
32 to 32.9 gravity	1.16
33 to 33.9 gravity	1.19
34 to 34.9 gravity	1.22
35 to 35.9 gravity	1.25
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.31
38 to 38.9 gravity	1.34
39 to 39.9 gravity	1.37
40 to 40.9 gravity	1.40
41 to 41.9 gravity	1.43
42 to 42.9 gravity	1.46
43 to 43.9 gravity	1.49
44 to 44.9 gravity	1.52
45 to 45.9 gravity	1.55
46 to 46.9 gravity	1.58
47 to 47.9 gravity	1.61
48 to 48.9 gravity	1.64
49 to 49.9 gravity	1.67
50 to 50.9 gravity	1.70
51 to 51.9 gravity	1.73
52 and above	1.76

*Shreveport-Eldorado's postings stop at above 40 gravity.

**Below 36 gravity, the posting on Cotton Valley is 75 cents. From 36 to 52 and above the regular gravity schedule is followed.

STEPHENS	
(All Companies)	
Below 28	.85
28 to 28.9 gravity	.87
29 to 29.9 gravity	.89
30 to 30.9 gravity	.91
31 to 31.9 gravity	.93
32 and above	.95
SMACKOVER	
(All Companies)	
Below 24 gravity	.7[illegible]
24 and above	.90
Bellevue	1.25
Jennings	1.15
Vinton	1.30
Edgerly	1.30
Starks Dome	1.30
Urania	.75
Calion	.75

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

American Petroleum Institute Figures (Barrels of 42 gallons)

	Week Ended May 12	Week En'd May 5
AT ATLANTIC COAST PORTS—		
Baltimore	63,000	323,000
Boston	.....	.....
New York	610,000	a53,6000
Philadelphia	146,000	395,000
Others	184,000	406,000
Total	1,003,000	1,660,000
Daily average	143,285	237,143
AT GULF COAST PORTS—		
Galveston district	40,000	.....
New Orleans and Baton Rouge	78,000	187,000
Port Arthur and Sabine district	.....	.....
Tampa	19,000	40,000
Total	137,000	227,000
Daily average	19,572	32,429
AT ALL UNITED STATES PORTS—		
Total	1,140,000	1,887,000
Daily average	162,857	269,572
Daily average four weeks ended	232,322	251,250

RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

American Petroleum Institute Figures (Barrels of 42 gallons)

	Week Ended May 12	Week En'd May 5
AT ATLANTIC COAST PORTS—		
Baltimore	80,000	70,000
Boston	87,000	.....
New York	177,000	248,000
Philadelphia	179,000	282,000
Others	.....	.....
Total	523,000	600,000
Daily average	74,714	85,714
AT GULF COAST PORTS—		
Daily average	.....	.....
TOTAL—ATLANTIC AND GULF COAST PORTS	523,000	600,000
Daily average	74,714	85,714
Daily average four weeks ended	74,071	65,107
DISTRIBUTION OF TOTAL CALIFORNIA RECEIPTS IS AS FOLLOWS—		
Crude	169,000	90,000
Gasoline	354,000	345,000
Gas oil	.....	165,000
Total	523,000	600,000

(a) Revised

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Agents for California:
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PERMITS GRANTED FOR NEW WELLS

WEEKLY COMPARISON OF NEW WELLS

Following is a condensed table giving a comparison of permits or locations made for new wells during the past year in Kansas, Oklahoma, Arkansas, Louisiana, Texas, California and the Mountain States:

	Week ending May 19	Prev. ious week	Total this month	Total this year	This week last year	This month 1927	Total same date 1927	Year total 1927
Arkansas	9	..	17	98	5	15	165	329
California	12	13	43	389	27	94	640	1,226
Louisiana	11	12	56	276	18	54	252	812
Kansas	11	10	47	435	13	29	460	972
Oklahoma	91	51	208	1,246	69	255	1,794	3,702
Texas	195	124	522	2,954	177	532	4,351	8,665
Mt. States	..	..	..	..	..	17	278	494
Totals	329	210	873	5,390	309	996	7,940	16,149

OKLAHOMA

BECKHAM COUNTY—Magnolia, A. Davis 1, sw se se, 21-9n-23w.

CARTER COUNTY — Magnolia, Miller 1, sw c 28-1s-3w. Schermerhorn Oil Co. et al, Crockett 4, nw ne sw, 23-1s3w.

COTTON COUNTY — Guiler & Pyson, Thomas 1, se c sw, 16-4s-12w.

CREEK COUNTY — J. H. Markham, Jr., Beesley 7, nw c sw nw, 20-17-7e. Schaffer O. & R. Co., Jones 1, sw c ne, 26-18-7e. McCulloch Oil Co. et al, Venoil 1, se c ne, 31-14-9e. Chief Drlg. Co., Fulsom 2, nwc se, 16-17-10e. C. G. Tibbens, Jackson 4, ne c sw, 4-18-12e. Savoy Oil Co., Bruner 1, nw c ne, 25-19-9e. Roxana, Sewell 6, se c nw ne, 18-19-9e.

CUSTER COUNTY—W. E. Witt 1, c sw, 1-14-14w.

GRADY COUNTY — Twin State Oil Co., Cox 2, ne c se, 14-4n-8w. Watchorn O&G Co., Huling 2, sw c nw, 13-4n-8w. Wirt Franklin Oil Corp., Long 1, sw c ne, 31-5n-6w. Simpson & Fell, Long 1, se nw nw, 36-5n-7w. Noble & Westervelt, McCaughtry 6, sw ne nw, 35-5n-8w. Gas Utilities Co., Farwell 12, se ne sw, 26-5n-8w.

HUGHES COUNTY—I. T. I. O. Co., Bingham 1, nwc se sw, 8-5-8e. Dixie Oil Co., Diamond "B" 2, ne c se, 18-8-10e.

JEFFERSON COUNTY—Sigler et al, Peniston 1, nw c sw sw, 16-7s-5w.

KAY COUNTY—Martin et al, Quade 2, se c ne sw, 4-27-1e. Rogers et al, Ellidge 2, c se ne, 32-27-1w. John Goins et al, Hack 1, nw c sw, 24-28-1w. Blackwell O&G Co., Janke 1, c se sw, 11-28-1w. Burnham & McGraw, Swenson 1, ne nw se, 29-29-1e.

LOGAN COUNTY — Blackwell O&G Co., Quigley 1, se nw sw, 21-18-4w.

MARSHALL COUNTY—Humble O&R Co., Sullivan 3, ne c, 25-5s-5e.

MUSKOGEE COUNTY—Herbert Oil Co., Foreman 2, c w l e½ se nw, 14-13-18e. L. T. Haney et al, Webber 1, sw c ne ne se, 17-14-20e. Robinson Bros., Tipton 3A, c ne se ne, 7-14-19e. J. L. Dixon, Scott 1, sw c nw se, 11-14-18e. Tidal Oil Co., Grimmett 12, c sw sw, 5-14-18e. Scotch Oil Co., Crabtree 1A, se c nw ne, 2-14-18e. W. J. Metzger et al, Francis 1, sw c se sw, 1-14-18e. C. D. Bradley, Rogers 2, ne c sw, 21-15-19e. J. R. Parks, Benge 2, ne c se ne nw, 13-15-19e. Hogan & Brewer, McKellop 1, sw c nw nw, 36-15-18e. J. E. Sweatt, Davidson 1A, c n l se sw, 24-15-17e. Starr Dev. Co., Morris 2, sw c ne se, 20-15-15e. Bryan & Emery, Barnett 3, c se ne, 8-15-15e.

OKFUSKEE COUNTY—Prairie O&G Co., Bird 1, nw c ne, 21-10-11e. Champlin O&R Co., Tucker 5, se c nw, 15-11-11e. The Texas Co., Tiger 3, swc ne se, 35-11-11e. McCullouch Oil Co. et al, Hully 1A, ne c nw ne, 29-10-10e. Devonian Oil Co., Fier 1, se c sw ne, 11-10-11e.

OKMULGEE COUNTY—McInturff et al, Edwards 2, nw c se ne, 4-12-14e. Kirkland & Son, Bell 8, se c sw sw ne, 17-15-13e.

OSAGE COUNTY—Okla. Nat. Gas Co., 784, sw nw sw, 11-21-10e. Potts & Fields 3, nw c sw ne nw, 30-23-12e. Osage Gas Producers 388, ne c nw sw ne, 32-24-12e. Marland Ref. Co. 10, nw c ne se ne, 16-24-8e. I. T. I. O. Co. 392, ne c, 29-25-8e. Phillips Pet. Co 17, sw c ne ne se, 11-27-5e. Phillips Pet. Co. 6, ne sw se, 1-27-5e; 4, se c, 1-27-5e; 1, sw c, 1-27-5e. R. L. Berlin 12, ne nw nw, 24-29-10e.

PAWNEE COUNTY — Empire O&R Co., Tucker 1, sw ne sw, 10-22-3e.

PAYNE COUNTY—Empire O&R Co., Minnick 1, nw c ne, 3-18-6e. Pure Oil Co., DeJarnett 1, se c ne, 7-18-4e.

PONTOTOC COUNTY — Westheimer & Daube, Millner 3, c n l se se se, 8-5-8e.

POTTAWATOMIE COUNTY—Sinclair O& G Co., Blandin 1, nw c sw, 24-7-4e. Interocean Oil Co., McGee 1, sw nw se, 23-7-4e. Gypsy Oil Co., Cecil 4, nw se ne, 19-7-4e. Carter Oil Co., Davis 2, ne c se, 19-7-4e. Stogner et al, St. Louis Townsite 1, sw c, 14-7-4e.

SEMINOLE COUNTY—Sun Ray Oil Corp., Culley 6, ne sw ne, 18-45-8e. Sunry Oil Corp., Culley 7, nw se ne, 18-5-8e. Gilcrease Oil Co., Reed 1, ne nw ne, 18-5-8e. Anderson & Prichard, Culley 2, se sw ne, 18-5-8e. The Texas Co., Hyde 3, se ne se, 7-5-8e. The Texas Co., Hyde 2, sw nw sw, 8-5-8e. Mid-Continent Pet. Corp., Fleet 12, nw sw se, 7-5-8e. Homaokla Oil Co., Brown 2, ne sw se, 29-8-8e. Pure Oil Co., Strothers "F" 7, se nw nw, 18-8-6e. Twin State Oil Co., Mayes 1, nw ne ne, 8-8-6e. T. B. Slick, Jones 2, se sw se, 3-8-6e. I. T. I. O. Co., Simpson 1, se c ne, 10-8-5e. T. B. Slick, Jones 1, sw se se, 3-8-6e. Sinclair O&G Co., Sango 4, nw se ne, 2-9-5e.

STEPHENS COUNTY—Petroleum Producers Co. & American Pipe Line Co., Bond 4, se c sw nw sw, 7-2s-7w; Brown 4, se c sw sw nw, 7-2s-7w. Maer & Staniforth, Renes 1, sw c nw nw, 7-2s-7w. Pace et al, Wilson 3, ne c se se ne, 12-2s-8w; Smith 1, sw c se, 35-1s-8w. Wirt Franklin Pet. Corp., Drake "B" 1, sw c ne, 12-1s-4w.

TILLMAN COUNTY—A. N. Pearson et al, Indian 1, sw c, 3-5s-15w.

TULSA COUNTY—Sac and Fox Oil Co., Haikey 5, ne nw sw, 33-18-14e. Sand Springs Home, Jones 1, se c nw ne, 15-19-11e.

WOODS COUNTY — Geo. Vincent et al, Freedom 1, c sw, 11-28-18w.

ARKANSAS

UNION COUNTY—Arkansas Nat. Gas Co., Felsenthal 1, 11-17-14, 330 ft n and 330 ft w of se c nw nw. H. L. Hunt, Dykes 1, owd, 21-18-12, ne c se sw. E. C. Johnson, Gregory 1, 10-17-14, 150 ft n and 150 ft w of se c nw sw. E. M. Jones, Stegall 1, owd, 22-17-14, 320 ft w and 320 ft s of ne c se se. Lion O&R Co., Kelly 1, 9-17-14, 330 ft n and 330 ft e of sw c se se. Lion O&R Co., Rowland 3, 15-17-14, 150 ft s and 200 ft e of nw c ne ne. Magna Prod. Co., Dumas 4, 11-17-14, se c sw nw. Dr. Rushing et al, Gregory 3, 11-17-14, 180 ft n and 160 ft w of se c w½ nw sw. Dr. Rushing et al's Gregory 4, 11-17-14, 150 ft w and 660 ft n of se c w½ nw sw.

LOUISIANA

BOSSIER PARISH — Arkansas Nat. Gas Corp., Shreveport, S. H. Bolinger & Co. 2, 38-23n-11w, 660 ft s and 660 ft e of nw c lot 23. Arkansas Natl. Gas Corp., Shreveport, Peyton 1, 30-23n-11w, 624 ft n and 425 ft e of sw c nw sw. Nat. Gas Prod. Co., Shreveport, Kilgore 1, 31-23n-11w, 2080 ft n and 1980 ft e of sw c.

CAMERON PARISH—Yount-Lee Oil Co., Beaumont, Texas, State Land 11 (amended permit), 36-12s-10w, 850 ft e and 635 ft n of sw c; State Land 12 (amended permit), 36-12s-10w, 587 ft e and 440 ft n of sw c; State Land 13, 24-12s-10w, 190 ft w and 250 ft n of sw c sec 36-12s-10w in sec 24.

LA FOURCHE PARISH—Gulf Ref. Co. of La., Houston, Texas, W. H. Stark et al 4, 71-15s-15e, 700 ft w and 315 ft s of center.

MOREHOUSE PARISH—Southern Carbon Co., Monroe, Tensas Delta 4, 22-21n-4e, 710 ft n and 660 ft w of se cor of sw ¼.

NATCHITOCHES PARISH—S. D. McDaniel, Shreveport, Clark-Morse Lbr. Co. 1, 23-5n-6w, 878 ft n and 560 ft e of center of sec.

RICHLAND PARISH — Southern Carbon Co., Monroe, Spann 2, 8-16n-6e, 980 ft n and 1100 ft w of se c.

ST. MARTIN PARISH—Rycade Oil Corp., La. State 1, 13-9s-8e, 2957 ft n and 1811 ft w of se c; Martin 1, 14-9s-8e, 150 ft n and 150 ft w of sec.

UNION PARISH — Nat. Gas Prod. Co. of La., Bastrop, Pace 1, 5-22n-3e, 660 ft n and 2640 ft w of se c.

WEBSTER PARISH—Bethany O. & G. Co., Shreveport, Adkins 1, 32-23n-9w, 660 ft s and 660 ft e of nw c nw nw.

CALIFORNIA

HUNTINGTON BEACH—Standard Oil Co., Bolsa 32, 34-5-11.

KERN COUNTY—General Pet. Corp., Glide 21-30, 21-27-28.

LONG BEACH—General Pet. Corp., Stiles 1, 35-25-25, Miley Oil Co., Mills 8, 19-4-12. Dabney-Johnston Oil Corp., 13, 30-4-12. Sovereign Oil Corp., 3, 19-4-12.

MIDWAY—Standard Oil Co., 83, 29-31-24.

MONTEBELLO—Standard Oil Co., W-C 2, 3-2-12.

MT. POSO—General Pet. Corp., Glide 21-30, 21-27-28.

ROUND MOUNTAIN—F. M. Sayre, S-M 1, 10-28-28.

SAN BENITO COUNTY — G. H. Hadley, Jr., 1, 5-17-12.

TORRANCE—W. W. Bush 2, 16-4-14.

KANSAS

COFFEY COUNTY—Ellis et al, Van Noy 1, se c ne, 1-23-14e.

COWLEY COUNTY—Watchorn O&G Co., Esch 4, c se se, 32-33-6e.

ELK COUNTY—Odell et al, Lyeman 3, ne c se, 9-31-10e.

GREENWOOD COUNTY — Swartz et al, Miller 1, sw c nw, 17-22-13e. Murphy et al, Olson 3, nw c sw se, 6-25-9e. McCullough Oil Co., Geise 1, sw c ne, 33-25-13e. Obine et al, Cooper 1, nwc sw, 6-27-12e.

MARION COUNTY—Tidal Oil Co., Graham 1, c sw ne, 26-20-4e.

ROOKS COUNTY — Empire O. & R. Co., Dodrill 1, nec se nw, 15-8-18w.

RUSSELL COUNTY — Hartman & Skaer, Taylor 1, c sw, 35-13-12w.

WOODSON COUNTY — Harper Oil Co., Paek 2, c s l sw sw, 16-23-14e.

TEXAS

ARCHER COUNTY — Johnson & Fraser, Wichita Falls, Wilson 7, blk 19, Geraldine sur, 300 ft w of 4. F. P. Rose, Wichita Falls, White 1, blk 19, D. C. S. L. sur, 450 ft from n and 150 ft from e line. L. T. Burns, Wichita Falls, Wilson 1G, blk 118, Amer. Trib. sur, 150 ft from n and e lines. Shappell Oil Co.,

Pipe Line Construction

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FORT WORTH, TEXAS

Amongst the Companies contracted with are the following:

U. S. Government

Standard Oil Co. of New Jersey	Standard Oil Co. of New York
Houston Pipe Line Company	Sinclair Pipe Line Company
Magnolia Petroleum Company	Roxana Petroleum Company
Prairie Pipe Line Company	American Petroleum Company
Ohio Oil Company	Pierce Oil Company
Illinois Pipe Line Company	Peoples Gas Company
Pure Oil Pipe Line Company	Magnolia Gas Company
Oklahoma Pipe Line Company	Lone Star Gas Company
Buckeye Pipe Line Company	Southern Gas Company
Swiftsure Petroleum Company	Latex Gas Company
Louisiana-Arkansas Pipe Line Co.	Landreth Production Company

Wichita Falls, Walsh 1, 2485, TE&L sur, 510 ft from e and 150 ft from n line. J. P. Rayzor et al, Wichita Falls, Turbeville 1B, R. Carson sur, 400 ft from n and 150 ft from e line. Halfast & Standard Pipe & Supply Co., Dallas, Miller 1, S 43, Amer. Trib. sur, 150 ft from n and w lines. E. P. Rose, Wichita Falls, Garvey 2, 1956, TE&L sur, 300 ft e of 1. Un-Underwood Drilling Co., Wichita Falls, Wilson 2, S 12, H&TC sur, 600 ft w of 1. Consolidated Oil Co., Wichita Falls, Campbell 1, blk 2, L. M. Meade sur, 150 ft from n and w lines. E. R. Marts, Dallas, Prideaux 2, blk 8, McMullen sur, 800 ft from e and 646 ft from n line. Simms Oil Co., Dallas, Connor 1, J. Tomlinson sur, 150 ft from s and e lines. J. M. Howard, Holliday, Wilson 1, blk 23, Amer. Trib. sur, 275 ft from n and 800 ft from w line. Crude Prod. Corp., Wichita Falls, Prideaux 5, A. Rohus sur, 300 ft s of 4. Consolidated Oil Co., Wichita Falls, Wilson 1, blk 116, Amer. Trib. sur, 150 ft from n and 434 ft from e line. Petroleum Prod. Co., Wichita Falls, Wilson E 5, blk 13, Geraldine sur, 300 ft e of 3. J. H. Turner, Iowa Park, Griffin 1, center. Panhandle Ref. Co. & McGregor, Wichita Falls, Farmer 5B, S 1, J. Pointevent sur, 300 ft s of 2.

ANDERSON COUNTY—Cosden & Co., Inc., Fort Worth, Adams 1, T. M. Carroll sur, 150 ft from n and 1500 ft from w line.

BROWN COUNTY—Ledger O. & G. Co., Brownwood, Bush 2, No. 624, J. Kinney sur, 800 ft from e and 150 ft from s line. Cranfill & Reynolds, Cisco, Eubank 3, No. 141, R. Mitchell sur, 300 ft s of 2; Kellar A 2, No. 141, R. Mitchell sur, 300 ft s of A1. Culbertson Bros. Co. et al, Fort Worth, Suttles 1, No. 140, 150 ft from n and w lines. Gordon & White, Rising Star, Moseley 1, Moseley sur, 800 ft from n and 550 ft from e line. Henshaw Oil Corp., San Angelo, Cross 3, No. 624, J. Kinney sur, 1050 ft from n and 150 ft from w line; Bush 13, No. 624, J. Kinney sur, 150 ft from e and 450 ft from s line; 14, 300 ft w of 13. Phillips Pet. Co., Bartlesville, Okla., Hickman 14, No. 783, T. Benson sur, nw corner. Crabb, McNeel & Stout, Cross Plains, Cox & McInnis 1, No. 643, W. McMasters sur, 150 ft from n and w lines. E. M. Curry, Rising Star, Logan 1, K. C. S. L. usr, 450 ft from e and 150 ft from s line. E. L. Smith Oil Co., Mexia, Marr 1, G. L. Gillespie sur, 150 ft from n and 450 ft from e line. Moore 1, J. C. Bailey sur, 150 ft from n and 450 ft from e line. Jay Hawk Pet. Co., Brownwood, Boysen 7, S 4, W. Ahrenbeck sur, 300 ft s of 8; 8, 300 ft w of 9; 9, 450 ft from n and e lines; 10, 150 ft from n and e lines. Mexana Oil Co., San Antonio, Wallace 1, blk 25, E. Votaw sur, No. 229, 150 ft from n and w lines. Midland Oil Co., Fort Worth, Butler 4, T. Benson sur, 450 ft from e and 150 ft from s line. Kone Prod. Co., Cisco, Hickman C2, T. Benson sur, 150 ft from n and e lines. Midsun Oil Corp., Brownwood, Cross 1, No. 624, J. Kinney sur, 150 ft from n and w lines. Phillips Pet. Co., Bartlesville, Okla. Alexander 1, No. 792, J. Veck sur, 1630 ft from w and 150 ft from s line. Gulf, Breeding & Hutson, Rising Star, Lane 1, S. Mankins sur, 750 ft from w and 500 ft from n line. Smith & Scott, Cisco, Bourn 1, H. Reed sur, 700 ft from w and 500 ft from s line.

BRAZORIA COUNTY — Gulf Prod. Co., Houston, Perry 4, S. F. Austin sur, 250 ft e of 1.

CALLAHAN COUNTY — R. P. & W. P. Glenn, Abilene, Woods 1, 2276, TE&L sur, 400 ft from s and w lines. Bermingham & Isaacs, Moran, Hayden 11, S 115, T. E. Hayden sur, se corner. V. W. Swoveland, Ranger, Shackleford 3, S 14, D&D sur, 150 ft from w and 1150 ft from s line. Moutray Oil Co., Abilene, Hickman 12, S 149, BBB&C sur, 300 ft e of 10. Hardin & Groce, Cisco, Bayland Asy. 1, Bayland Asy. sur, se corner.

CALDWELL COUNTY—Magnolia Pet. Co., Dallas, Gary 1, J. R. Miller sur, 150 ft from n and w lines. Luling O. & G. Co., San Antonio, Carter 2, S. Hinds sur, 450 ft from s and 1050 ft from w lines. Roxana Pet. Co., Dallas, Medford 1, D. Cooper sur, 5458 ft from n and 3100 ft from w line. Davis & Ford, Young 1, 150 ft from s and e lines. Sun Oil Co., Dallas, Talley 5, W. C. Swearingen sur, 600 ft se of 4. J. E. Dickson, Luling, Teas 1, J. Miller sur, 150 ft from n and w lines. Adams & Lyles, Lockhart, Texas, Moore 1, J. Gilbert sur, 150 ft from n and e lines. United North & South Dev. Co., Luling, Branyon 1, D. Cooper sur, 1050 ft from e and 150 ft from s line. J. Heidenheimer, Jr., Austin, Branyon 1, 700 ft from n and 300 ft from e line.

COLEMAN COUNTY—J. K. Hughes Dev. Co., Mexia, Lewis 1, J. Kinney sur, center. Cunningham, Simpson, White & Pinkerton, Coleman, Jennings 2B, S 94, A. S. Lipscomb sur, 300 ft n of 1; Jennings 1C, 150 ft from n and e lines. Derby Oil Co., Wichita, Kansas, Boyd 1, blk 94, A. S. Lipscomb sur, 180 ft from w and 150 ft from s line. R. V. Whiteside, Duluth, Minn., Stafford 1, No. 273, B. Alderata sur, 150 ft from n and 1500 ft from w line. Taylor-Link Oil Co., San Angelo, Bowen 1, S 25, BBB&C sur, 150 ft from e and 428 ft from s line.

CROCKETT COUNTY — McMan O. & G. Co. & Amerada Pet. Corp., Cisco, Powell 1, S 52, blk BB, GC&SF sur, 330 ft s of center of n line. Gulf Production Co., Fort Worth, Powell D 3, S 62, blk BB, GC&SF sur, 150 ft from s and e lines. Pecos-Marland Oil Co., Big Lake, University 1, S 13, blk 31, Univ. Lands sur, center. California Co., Colorado, Powell 1, S 62, blk BB, GC&SF sur, 330 ft from s and e lines; 2, 1500 ft from se and 150 ft from s line. Taylor-Link Oil Co., San Angelo, Peck 1, S 37, blk 31, H&TC sur, 1170 ft from se and 330 ft from sw line.

CRANE COUNTY — Texas Co., Wichita Falls, University 2, S 46, blk 30, Univ. Lands sur, 330 ft from n and w lines. Cowboy Evans, Abilene, Texas American Synd. 1, S 23, blk 4, H&TC sur, 1320 ft from ne and 2640 ft from se line. Humble O. & R. Co., Wichita Falls, University 1, S 40, blk 30, Univ. Lands sur, 330 ft from s and e lines. Gulf, Fort Worth, McElroy 51, S 201, blk F, CCSD&RGNG sur, 660 ft w of 49.

CLAY COUNTY—Manhattan Oil Co., Abilene, Elmore 1, S 85, F. C. S. L. sur, 150 ft s of center of line.

DUVAL COUNTY—Houston Oil Co., Houston, Lopez B2, S 319, blk 3, 155 ft from ne and 460 ft from se line. Robert Driscoll, Corpus Christi, Fee 12, S 23, 300 ft e of 8.

EASTLAND COUNTY—Panhandle Ref. Co., Wichita Falls, Webb 1, E. Finley sur, 1000 ft from w and 300 ft from n line. Barkley & Gholson, Ranger, Duffer 4, blk 2, S 5, McL. S. S. L. sur, 350 ft from e and 2900 ft from s line. R. W. Cleangan, Cisco, Penn 1, S468, S. P. Ry sur, 450 ft from s and w lines. J. E. Lewis & Co., Eastland, Downtain 1, S 12, blk 4, H&TC sur, 700 ft from n and 165 ft from e line. Lechner & Clark, Eastland, White 1, S 23, blk 2, E. T. Ry. sur, 150 ft from n and e lines. Bennett & Smith, Rising Star, Cade Hrs. 1, J. Roberts sur, 2490 ft from n and 2458 ft from e line. Moore & Lewis, Eastland, Harbin 2, S 27, blk 2, H&TC sur, 462 ft w of 1. J. H. Fulcher et al, Eastland, Woods 1, McL. C. S. L. sur, 450 ft from n and 1320 ft from e line. Thompson & McMillan, Eastland, Green 1, S 458, S. P. Ry. sur, 330 ft from s and e lines.

ERATH COUNTY—Erath O. & G. Co., 517 Broadway, San Antonio, Hill 2, S. Kelly sur, 288 ft from w and 863 ft from s line.

FORT BEND COUNTY — Gulf Prod. Co., Houston, Blakely B 12, blk G, E. Drew sur, 587 ft from s and 50 ft from e line; Wolf 9, No. 68, H&TC sur, 2014 ft from ne and 1435 ft from sw line. Humble O. & R. Co., Houston, Sugarland Ind. 2, Wm. Stafford sur, 500 ft from e and 400 ft from s line. S. E. Watts, Houston, Blakely 4, blk B, E. Drew sur, 50 ft from s and e lines. Rycade Oil Corp., Houston, Meier 5, H. N. Cleveland sur, 800 ft e of center of w line.

GRAY COUNTY — J. E. Parker, Wichita Falls, Parker 1, S 9, blk SE, N. Lynch sur, 990 ft from n and e lines; 2, 1320 ft s of 1. Phillips Pet. Co., Bartlesville, Okla., Olsen 1, S 64, blk B2, H&GN sur, 330 ft from n and w lines; Jackson 4, S 88 blk B2, H&GN sur, 294 ft from n and 330 ft from e line. Gulf Prod. Co., Fort Worth, Davidson 1, S 87, blk B2, H&GN sur, 330 ft from n and w lines.

GONZALES COUNTY — M. S. Holliday, San Antonio, Bouldin 1, S 417, W. J. Sneed sur, 500 ft from w and 1500 ft from s line.

HARRIS COUNTY — Martin & Stallard, Humble, Griffith 2, Smith & Britton sur, se cor lot 9, blk 26. Radium O. & G. Co., Houston, Mays 1, W. W. Williams sur, 170 ft from n and w lines. Louisiana O. & R. Corp., Shreveport, La., Cherry 21, Jas. Strange sur, 134 ft from s and 236 ft from w line. E. C. Brain, Humble, McDonald 3, Jas. Strange sur, 160 ft nw of 2. Atlas Oil Corp., Humble, Weed 25, Jas. Strange sur, ne of 11. T. G. Shaw, Fort Worth, Fitzsimmons 2, No. 51, J. Hamilton sur, ne corner. Texas Co., Houston, House 21, M. Owens sur, 200 ft s of 20.

HARDIN COUNTY — E. W. Skinner Oil Co., Saratoga, Kirby 1, blk 5, BBB&C sur, 25 ft from n and 20 ft from w line.

HOWARD COUNTY — Magnolia Pet. Co., Dallas, O'Daniel 2, S 39, blk 30, T&P sur, 660 ft from n and e lines. Merrick & Lamb, Big Springs, Clay 4, S 126, blk 29, N&NW sur, 450 ft w of 3.

JONES COUNTY — Phillips Pet. Corp., Bartlesville, Okla., Mason 3, S 18, blk 19, T&P Ry. sur, 330 ft from e and 992 ft from s line.

JACK COUNTY—C. S. Leidecker, San Angelo, Loving 1, J. C. Ragsdale sur, 150 ft from s and w lines. Craig & Lowrie, Pittsburgh, Pa., Coats 5, W. Brryman sur, 300 ft e of 2. Panhandle Ref. Co., Wichita Falls, Smith 1, I. Hughson sur, 150 ft from n and w lines.

JEFFERSON COUNTY—Yount-Lee Oil Co., Beaumont, McFaddin 69, blk 1, P. Humphreys 337 ft from e and 1497 ft from n line. L. A. Painter Co., St. Louis, Mo., Rush 1, blk 102, J. A. Veatch sur, 40 ft n of center of s line.

KENT COUNTY—Cosden & Co., Inc., Fort Worth, Wallace 1, S 56, blk 98, H&TC sur, center.

LIMESTONE COUNTY—J. R. Stroud, Grosbeck, Strother 1, W. G. McKenzie sur, 175 ft from ne and 200 ft from nw line; Jackson 1, W. G. McKenzie sur, 160 ft n of center of s line. Noah Pierce Oil & Gas Co., Waxahachie, Criswell 1, T. Stevens sur, 150 ft from s and e lines. McDonald Synd., Corsicana, Webster 1, W. Jackson sur, 1918 ft from n and 150 ft from e line.

LIBERTY COUNTY—Sun Oil Co., Beaumont, Kyle 1, J. McFaddin sur, 30 ft from e and 60 ft from s line; Mitchell 4, M. G. White sur, 150 ft w of 3. Texas Co., Houston, Staiti 11, M. G. White sur, 50 ft from n and 2520 ft from e line.

MONTAGUE COUNTY—Humble O. & R. Co., Wichita Falls, Cunningham 2, L. Norton sur, 750 ft from n and 150 ft from w line. J. I. Lesh & Co., Wichita Falls, Maddox 5, blk 14, H. S. Arnold sur, 300 ft e of 4.

MITCHELL COUNTY — Owen-Sloan Oil Co., Colorado, Brown 1, S 81, blk 26, T&P sur, 330 ft from n and e lines.

McMULLEN COUNTY — H. A. Fonville, Fowlertown, Berry 1, S 9, blk 1, J. Poitevent sur, 1170 ft from e and 150 ft from s line.

NAVARRO COUNTY—Wm. Clarkson, Jr., Corsicana, Bradley Bros. 11, R. C. S. L. sur, 1149 ft from n and 1050 ft from w line; 12, 300 ft n of 2. Snowden & McSweeney, Fort Worth, Longbotham 14, T. C. Curry sur, 450 ft w of 2.

PANOLA COUNTY—M. H. Smith, Bethany, Bain 1, J. Dunlap sur, 650 ft from e and 600 ft from s line.

PECOS COUNTY — Amerada Pet. Corp., Cisco, Dillon 1, S 28, blk 140, T&St. L. sur, 330 ft from e and 990 ft from s line. Humble Oil & Ref. Co., Wichita Falls, Smith 8, S 36, blk 194, GC&SF sur, 1604 ft s of 7.

PALO PINTO COUNTY—M. L. Daltene et al, Mineral Wells, Daltere 1, 1790, TE&L sur, w central part of lease.

REAGAN COUNTY — Texon Oil & Land Co., Big Lake, University 1, S 11, blk 7, Univ. Lands sur, 300 ft from n and 330 ft from w line.

SHACKELFORD COUNTY—L. C. Heltzel et al, Cisco, Reynolds 2, S 31, blk 11, T&P sur, 150 ft from s and w lines. St. Mary's Oil & Gas Co., Moran, Alexander 14, S 4, L. A. L. sur, 280 ft from e and 220 ft from s line. Roeser & Pendleton, Inc., Fort Worth, Cook A64, S 60, E. T. Ry. sur, 150 ft from n and w lines. Gilman & McMurray et al, Cisco, Davis 1, S 14, blk 12, T&P Ry. sur, 150 ft from n and e lines.

TRAVIS COUNTY—J. W. Maddox, Austin, Ecklund 1, P. McElroy sur, 160 ft from e and 386 ft from s line.

VAL VERDE COUNTY—Valvert Oil Co., Fort Worth, Bassett 1, S 47, blk Y, center.

WICHITA COUNTY—Ryan Consolidated Pet. Corp., Bartlesville, Okla., Nance 95, S. O. Fowler sur, 365 ft sw of 93. Eastern Pet. Corp., Wichita Falls, Burnett 7A, blk 9, HT&B sur, 150 ft from s and w lines. J. E. Keller, Iowa

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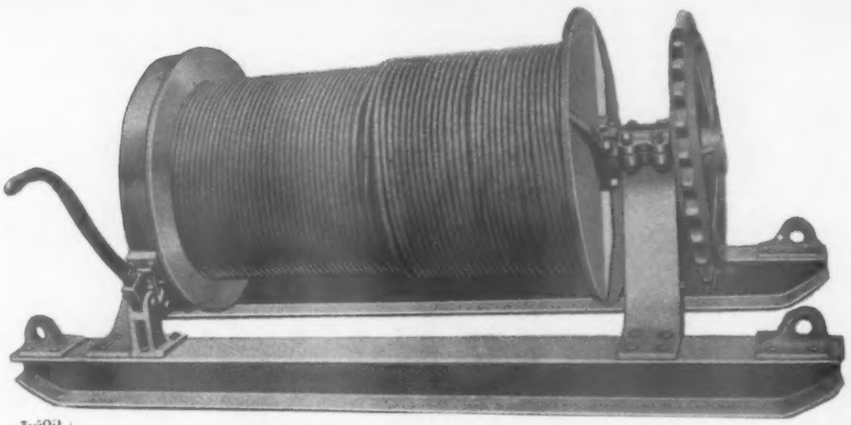

Capacity
9000′ 5/8″ line
6500′ 3/4″ line
4500′ 7/8″ line

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NO INDUSTRY has striven harder nor accomplished any more to overcome its incidental handicaps than has the oil industry. Conservation of time is a universal industrial goal. The oil industry is further burdened with extraordinarily heavy machinery and delays, due to change of method operations.

One of the greatest hazards incidental to the production of oil is the handling of the bailing line. This line is a cable, in the deep fields, about 6000 feet long. To bail or swab a well, the drilling line must be taken off the drum and the bailing line placed thereon.

Ever since this practice became common in the field, a wooden reel has been used to contain the line while it is not in operation. It has heretofore taken from two to four hours to change lines, as the work had to be done by hand. Helpers on the derrick have always dreaded the task. It is one of the most strenuous experiences in the course of drilling a well.

C. H. Latson, field superintendent for the Sun Oil company at Spindle Top, has designed and introduced a mechanical reel, which reduces the changing time from the usual four hours to 20 minutes. It also reduces the manual labor about 90 per cent.

The reel is a drum placed on skids, similar to those used on slush pumps. The drum is on a shaft. On one end of the shaft is a sprocket, which accommodates a chain which may be connected to the line shaft of the draw works.

Under the old method, the line could not be reeled evenly nor tightly. The new reel facilitates both. When putting the line on the rig, the line is snubbed with the brake on the reel. This permits the line to be even on the drum. A loosely reeled line on the rig permits it to kink and cut in the instance of a heavy load. A cut in the middle of a line renders the line worthless and dangerous. A 6000-foot line costs about $2000.

The same principle applies to taking the line off the drum and putting it on the reel. The reel is operated from the engine and the brakes on the drum keep the line tight.

The reels are built in Beaumont by the Beaumont Iron works.

2,385
220
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Engineering Crews
for the installation of Pumping Powers and related equipment.

Park, Waggoner Bros. 1, blk 1, M. A. Willis sur, 130 ft from s and e lines. R. P. Dorian, Wichita Falls, Green 4, blk 96, R. R. V. L. sur, sw corner. Coppock & Coleman, Iowa Park, Kemp & Kempner 11, blk 82, HT&B sur, 300 ft w of 10. Atlas Prod, Corp., Burkburnett, Roller 12, C. T. Ry. sur, 150 ft w of center of e line.

WILBARGER COUNTY — Waggoner Ref. Co., Electra, Waggoner E4, S 30, blk 4, H&TC sur, 300 ft s of 3. Barkley & Meadows, Wichita Falls, Waggoner A5, S 4, blk 4, H&TC sur, 455 ft n of 2. Beavens & Silkwood, Wichita Falls, Harrold Pet. Co. 1, S 25, blk 13, H&TC sur, 150 ft from s and w lines. Cosden & Co., Inc., Fort Worth, Waggoner 15B, S 31, blk 4, H&TC sur, 2075 ft from n and 150 ft from w line; Waggoner B 21B, 300 ft s of 20.

WINKLER COUNTY — Skelly Oil Co., Tulsa, Okla., T. G. Hendrick A 2, S 40, blk 26, ne corner; 3, 330 ft from e and 440 ft from s line; 4, 440 ft from n and 330 ft from e line; 5, 330 ft from w and 440 ft from s line. Texon Oil & Land Co., Big Lake, T. G. Hendrick 4A, S 41, blk B5, 660 ft e of 3; T. G. Hendrick 4B, S 45, blk 26, 330 ft from s and w lines. Dixie & Southern Crude Oil Purchasing Co., Shreveport, La., I. Hendrick J1, S 30, blk B5, 330 ft from e and 2145 ft from s line. Humble O. & R. Co., Wichita Falls, I. Hendrick C 5, S 32, blk 26, 330 ft from n and e lines; 6, 660 ft s of 2; T. G. Hendrick B1, S 39, blk 26, 440 ft from n and 990 ft from w line; B2, 660 ft e of 1; B3, 330 ft from w and 440 ft from s line. Gulf Prod. Co., Fort Worth, T. G. Hendrick 20, S 45, blk 26, 860 ft w of 17; 21, 660 ft w of 18; 22, 660 ft e of 19; 23, 980 ft n of 10. Southern Crude Oil Purchasing Co., Shreveport, La., I. Hendrick B3, S 44, blk 26, 330 ft from e and 1320 ft from s line; B4, 330 ft from s and e line. Roxana Pet. Corp., Dallas, Hendrick A4, S 45, blk 26, 1320 ft from n and 330 ft from e line. Pure Oil Co., Mexia, T. G. Hendrick C 5, S 45, blk 26, 860 ft w of 4; T. G. Hendrick A 7, S 41, blk B5, 660 ft ne of 1. Texas Pacific Coal & Oil Co., Ranger, Daugherty 1, S 4, blk 74, School sur, 330 ft from s and e lines; 2, 330 ft from s and e lines, ne¼ of se¼.

WEBB COUNTY—Magnolia, Dallas, Valdez 2, C 754, 300 ft n of 1. Houston Oil Co., Houston, Cueller 3, No. 1 Cueller sur, 9992 ft from nw and 1601 ft from ne line.

WILLIAMSON COUNTY — S. M. Messer, Davilla, Zimmerman 1, 600 ft from n and 150 ft from w line; Zimmer 1, 300 ft from n and w lines.

WASHINGTON COUNTY—Trinity Drillers, Inc., San Antonio, Giddings 1, Giddings sur, 150 ft from n and e lines.

WHARTON COUNTY — Gulf Prod. Co., Houston, Kostelnik 1, 1350 ft from se and 200 ft from sw line. Weed-Gayle Oil Co., Beaumont, Bay 20, 19, S. F. Austin sur, 300 ft ne of 11.

YOUNG COUNTY — R. J. Brown et al, Wichita Falls, Hawkins 1, S 2, GB&N sur, 840 ft from s and 1170 ft from w line. Petroleum Prod. Co., Wichita Falls, Henning 1, 410, TE&L sur, 600 ft from n and 150 ft from w line. Roy Rodgers, Graham, Prideaux 5, S 16, Y. C. S. L. sur, 150 ft from n and 450 ft from w line. Barkley & Meadows, Wichita Falls, Garvey 1, 1857, TE&L sur, 150 ft from n and w lines. C. C. Williams, Jean, Smith 1, 2705, TE&L sur, 150 ft from s and w lines. Riggs & Oliphant, Graham, McKinney 6, 1489, TE&L sur, 150 ft from n and 450 ft from e line. Robert Oil Corp., et al, Breckenridge, Keen 5, 3401, TE&L sur, 300 ft n and 475 ft e of 1. Perkins & Cullum, Wichita Falls, Stewart 15, D. Dawson sur, 300 ft nw of 12. Pitzer & West, Breckenridge, Graham 1, B. Hill sur, ne corner. Cooper & Britton, Olney, Adams 1, S. Sallee sur, 150 ft from n and e lines. Shadbolt & Creighton, Cisco, Baker 1, S 1, R. Richardson sur, 150 ft from n and w lines. F. P. Rose, Wichita Falls, Kunkel 1, blk 4, BBB&C sur, 150 ft from n and e lines. Riggs & Oliphant, Graham, McKinney 7, 1489, TE&L sur, 750 ft from e and 150 ft from s line; 8, 750 ft from e and 150 ft from n line. Wooten & Reed, Graham, Pool 1, 3404, TE&L sur, 150 ft from w and 534 ft from s line. J. D. Carpenter et al, Olney, Texas, Tiffen 1, 1955, TE&L sur, 450 ft from w and 1721 ft from s line. Texas Co., Wichita Falls, Stewart 6, D. Dawson sur, 150 ft from s and e lines. T. F. Hunter, Wichita Falls, Hoffman 1, P. Averett sur, 150 ft from n and e lines. Prairie O. & G. Co., Ranger, Kunkel 1, S 4, BBB&C sur, 1165 ft from s and 150 ft from w line; 2, 1465 ft from s and 150 ft from w line. Perkins & Cullum, Wichita Falls, Stewart 16, D. Dawson sur, n of 15. Shappell Oil Co., Wichita Falls, Johnson 11, E. W. Sargent sur, 300 ft n of 10; Cox 2, S. Sallett sur, 450 ft from e and 150 ft from n line. Panhandle Ref. Co., Wichita Falls, Pitman 3, W. Matthews sur, 300 ft s of 2.

WILDCATS

(Continued from Page 126)

COLORADO

ARCHULETA—Kansas-Colorado Oil Co., 17-34-2w; sd 1820 ft.

BACA—Marland Oil Co., Table Mesa 1, 8-30s-50w, dr 1820 ft.

EL PASO—Grand Union Oil Co., John Jr. 2, 19-17s-67w, sd 775 ft.

ELBERT—Botts, Likkick et al, se 1-8s-59, dr 1800 ft.

JACKSON—North Park Oil Co., Goettler 1, 9-6n-82w, co 506 ft.

JEFFERSON—Wood et al, 1, 30-3s-69, dr 1345 ft.

LAS ANIMAS — Reiter-Foster & Phillips Pet., 23-29n-56, dr 1842 ft.

LA PLATA—Detroit Oil Assn., Olbert 1, 9-35-12w, sd 1610 ft. Royal P. & R., Red Mesa 1, ne 27-33n-12w, mvg in.

LOGAN—Northeastern Colo. Oil Co., State 1, 36-8n-55w, dr 5601 ft.

MESA—Eureka Oil Co., Holly 2, 24-1s-1e, dr 925 ft.

MOFFAT—Ohio Oil Co., Kuykendall 1, 22 21n-11w, sd for the winter. Reiter-Foster, State 1, 16-12-100, sd 2240 ft. Yarg Producing & Refining Co., 205, 26-4n-92w, dr 3830 ft. Alliance Oil Co., Milliken 1, 14-4n-92w, dr 3150 ft.

RIO BLANCO—Texas Prod. Co., Freeman 1, 27-3-94, cas reset 5567 ft. Argo Oil Co., sw 9-2s-96w, stndg ready to spd.

ROUTT—Great Western Oil Co., State 1, 17-60n-56w, dr 2504 ft.

WELD—Platte Valley Pet. Corp., Patterson 1, 24-6n-61w, stndg 3811 ft.

YUMA — Etmyre Synd., se sw 7-2s-43, dr 425 ft.

NEW MEXICO

CHAVES — Buffalo-Roswell 1, 24-11-27, sd 4270 ft. McQuigg Bros., Neis 1, 7-5s-29e, dr 2300 ft. Berrendo O. & G. Co., Roswell 1, 5-10-27, sd 725 ft. Manhattan Oil Co., Arena 1, 18-13-31e, dr 3770 ft. Snowden & McSweeney, Merchant 1, nw 27-15s-23e, sp. R. E. Neal et al, Russell 1, 21-14s-25e, spd 200 ft.

CURRY—Hasson Pet. Co., Laird 1, 22-8s-36, sp and sd.

DEBACA—Matador Oil Co., State 1, sw 6-4n-20e, wtg cas at 230 ft.

GUADALUPE — Hanchett Oil Co., Rutherford 1, 24-8-24, straightening crooked hole at 4355 ft.

LEA—Midwest Ref. Co., State 1, 9-19s-39e, dr 3225 ft. Marland Oil Co., Eaves 1, 19-26-37, ¶62 at 2929 ft. Marland Oil Co., Seideman, 4-25s-36e, dr 3310 ft. Marland Oil Co., Robert 1, 20-23s-35e, dr 2100 ft. Marland Oil Co., Sholes 1, 19-25s-37e, dr 925 ft. Empire Gas & Fuel Co., State 1, 8-21s-35e, dr 1000 ft. Gypsy Oil Co., State 1, 34-21s-36e, dr 850 ft.

McKINLEY—Smart & Reid, 7-17-9, rig. Inland Oil Corp., 22-18-10, installing heavier rig. S. Dysart 1, 21-14-9, sd 1700 ft. Williams et al's 30-18-8w, sd 1795 ft. Reliance Oil Co., Valentine 1, 16-17-9, td 1645 ft, removing rig.

QUAY—Gibson Oil Corp., 1, 25-8-32, prep to deepen.

SAN JUAN—Continental Oil Co., Munoz 17, dr 4227 ft. Kansas-Colorado Oil Co., Atterberry 1, 23-31-11, sd 1850 ft. T. C. N. Oil Co., Lanier 1, 9-29-11, sd 547 ft. Huntington Park Oil Co., 29-30-9, wtg smaller tools, td 4585 ft. Fidelity Oil Co., Abrams 2, 23-29-11, standing 667 ft. Huerfano Oil Co., Wiltbank 1, 25-29-11, stndg 800 ft. San Juan Pet. Co., 1, 9-29-13w, sd 2950 ft. Poole & Peebles, Lawson 1, 9-30n-11w, dr below 770 ft. Co-Ne-Mo 1, 28-29-11, td 625 ft. Kirtland Drlg. Co., Hunt 1, 10-29-15, spd 110 ft. Kutz Canon Oil & Gas Co., Day 1, 29-28-10w, td 270 ft, wtg for repairs. Fidelity Oil Co., James 1, nw 23-29-11w, sd 225 ft.

SAN MIGUEL—E. Adams et al, Deason 1, 14-15n-16e, co 1235 ft.

SOCORRO—Abo Oil Co., 1A, 14-3s-6e, set 12-in at 600 ft and sd.

TORRANCE—Duran Dome Oil Co., 1, 31-2-14, sd 1600 ft. F. G. Wilson, Trustee, Pace 1, 12-6n-27, stndg 2215 ft. Bluhall O. & G. Co., 20-6n-10e, dr 920 ft. San Juan Coal & Oil Co., Randall 2, 26-6n-10e, oprns susp 5323 ft.

VALENCIA — Acme Oil Co., N. M.-Ariz. Land Co., 26-6-3, dr 2475 ft.

WYOMING

ALBANY—Union of California, 1, sw nw 35-17n-75w, dr 2156 ft.

BIG HORN—Agate Oil Co., ne 13-51-92, no report. Utah-Southern 3, 29-56n-97w, dr 3272 ft. Wisconsin-Himes, 9-54-94w, td 673 ft. Producers & Refiners 3, 24-56n-98w, dr 1813 ft. Assurance Oil Co., 1, 24-51n-93w, rig. Prescott-Bert 3, 30-51n-92w, spd.

CARBON—Portland Dome Synd., 28-26n-86w, sd 3600 ft. Graybeal Synd., 16-28-91, sd 4380 ft. Simpson Ridge Pet. Co., se 34-22n-89w, sd for repairs at 340 ft. Lake Valley Oil Co., se 14-20-88, resum 4915 ft. Pacific-American Oil Co., sw sw 32-25-89, spd and sd.

CONVERSE—Wind River O&G Co., ne 8-32-72, dr 550 ft. Criterion Oil Co., Irvine 1, 5-31-70, co 3597 ft. John Ackard, McKinley 1, 21-31-69, hauling in fuel to resume, 3000 ft.

FREMONT—Producers & Refiners, Muskrat 1, 34-34-92, dr 3555 ft. Texas Production Co., Alkali Butte 1, 1-34-95, dr 3310 ft. Iowa-Wyoming Inv. Co., 30-1s-2e, bottomed at 1500 ft. Martin Falk ne 9-31n-98w, str hole at 2308 ft. R. A. Brett et al, Haywire 1, se 29-32n-93w, dr 2000 ft.

JOHNSON — Fairway Oil Co., Crazy Woman 1, 7-47-82, sd 2367 ft. Tarrant Synd., 17-46n-82w, sd 3615 ft.

LINCOLN—Fontenelle Oil Co., 1, ne ne 1-24n-113w, sd to refinance, td 1075 ft. Quad States Enterprise, Inc., 111-19n-116w, mvg in. Midwest Exploration Explo. Co., Waterfall 1, sw 35-22-115, bldg rig.

NATRONA—Combs Dev. Co., nw 12-39-78, sd 2016 ft. Combs Dev. Co., ne 12-39n-78w, repairing, td 660 ft. Shoshone Consolidated Oil Co., se 4-30-81, straightening crooked hole at 150 ft, td 275 ft.

NIOBRARA — Penn-West Pet. Co., 13-35n-62w, bottomed at 800 ft. Hollingsworth Bros., 17-39-79, fsh. Buck Creek Oil Co., 4-36n-62w, dr 500 ft.

PARK—Fred G. Ostland, Hoodoo Ranch 1, 23-51-101, td 1740 ft. E. H. Rosenburg, ne 25-58n-98w, cav 1290 ft. Honolulu Oil Corp. and Producers & Refiners, Pitchfork 1, 14-48n-102w, mvg in. Ohio Oil Co., 27-53-101, co 3330 ft. Lenco Pet. Co., 20-52-102, sd 150 ft. Julius Peters et al, 17-57-101, lcn. Ydoc Pet. Co., ne 6-51n-101w, sd 735 ft. California Exploration Co., ne 14-48n-102w, mvg in.

PLATTE—Walter Adams, Trustee, 13-25-66, dr 2000 ft.

SUBLETTE — Wyo. Prod. Co., se 30-28n-113w, dr 1905 ft. California Co., 11-29n-115w, sp. Lackey et al, 12-28n-114w, redr 500 ft.

SWEETWATER—Prairie O&G Co., Tucker 1, 8-3-99, dr past tools at 698 ft. P. & R-Marland of Colo., 26-20-104, dr 1430 ft. Tower Pet. Co., 1, 6-14n-103w, crooked hole at 1322 ft. Custer Pet. Co., 24-12-100, dr 2000 ft.

UINTA—Uinta Oil & Dev. Co., 21-51n-120w, cas trouble at 2300 ft. Evanston O&G Co., 17-15-120, resum., td 2200 ft. California Co., 7-17n-116 w, water so at 235 ft. Olsen Bros., se 6-15-118, sd 2275 ft. J. R. Kelley et al, 12-14-18, lcn. Minton et al, 8-18-116, dr 450 ft. P. L. Cooper et al, 10-16-118 resuming. Marlmsbury et al, DeLoney 1, 26-14-118, mvg in. Brigman et al, 12-15-118, dr 1504 ft. Whitman et al, 18-16-117, dr. Mosey Kastor et al, secs 7 and 19-16-117, rigs mvg in. Chas. DeLoney 5-16-117, lcn.

WESTON—Gose Synd., ne 29-47n-65w, will resume with rotary cutter. Allen Oil Co., Howard 1, 15-44-64, dr below 1400 ft.

MONTANA

BIG HORN—Selig Oil Co., se 21-6s-35, rigging to resume at 850 ft.

CARBON—Ohio Oil Co., Northern Pacific 1, 11-7s-21e, fsh tools 4410 ft. Atlantic Oil Co., 3, 20-7s-24e, dr 1470 ft.

CASCADE — Lone Star, McLean 1, 12-21n-11e, straight reaming at 310 ft. Allen Oil Co., Keister, nw 11-22-1e, rig up.

FERGUS—Melton Corp., Fenholt 1, 24-21-17, cleaning out at 2390 ft. Mineral Research Co., 1, 13-17-23, susp 930 ft. DeMont Oil Co., 29-16-29, ur td 1185 ft. Minnesota-Flatwillow Petroleum Co., 5-12-25, mvg in.

GARFIELD—Carroll Bros., nw ne 6-14n-31e, stndg cmtd 1440 ft.

HILL—California Interests sw 15-30-13e, re-

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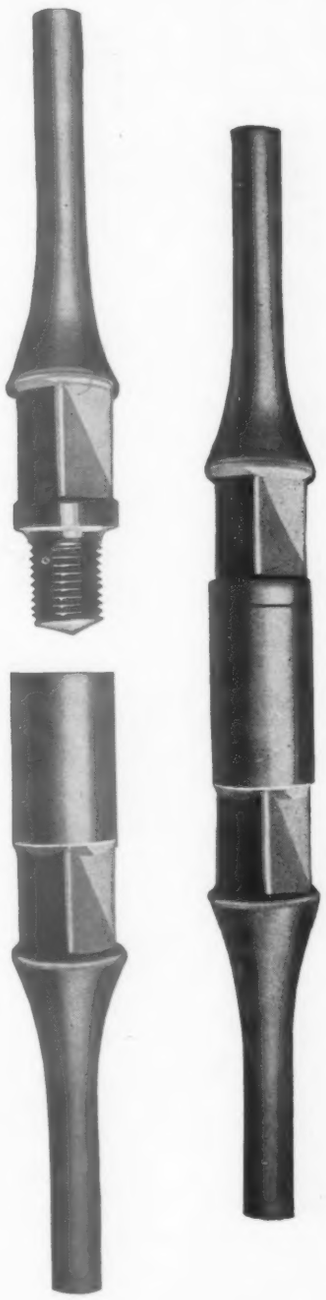

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SALES OFFICES

Monadnock Bldg., Chicago, Ill.

General Motors Bldg. Detroit, Michigan

Pioneer Trust Bldg. Kansas City, Mo.

suming at 100 ft. Jones Oil Co., Mangell 2, 32-32-14, dr 350 ft.

LIBERTY—Bear's Den Oil Co., Laird 1, 31-37n-6e, reaming pipe, td 3185 ft. Sunburst O&R Co., Disotell 1, 10-37-5e, testing.

RICHLAND—Community Drilling Co., Pioneer 1, se 35-27-51n-dr 3182 ft.

PONDERA—J. W. Elliott, 17-27-4w, 40 bbls production at 2086 ft. Texas Pacific Coal & Oil Co., Hirshberg 1, sw 14-27-4w, dr 900 ft Continental Dev. Co., Gjullin 1, nw 15-27-4w, dr 1000 ft.

PHILLIPS—Big Dome Oil Co., Bloomberg 1, ne 1-32-32e, resuming 980 ft. Dillman & Stephenson, sw 8-31n-34e, delayed by fsh job, now drilling below 750 ft.

SWEETGRASS—Shoshone Consolidated, ne 23-2n-15w, dr 2785 ft.

TETON—Craig-Speer-McCutcheon, 9-23-2w, abn 1400 ft. Continental Dev. Co., Ritmoure 1, 8-27-5w, Fulton Pet. Corp., Trevillion 1, nw 21-27-4w, dr 1300 ft. Elkhorn O&G Co., 1, ne 12-24-1e, sd 250 ft. Genou Oil Co., Jackson 1, 8-25-1e, dr 700 ft.

TOOLE—Sunburst O&R Co., Grandview 1, 10-34n-32, rig. Madeline Oil Co., Swenson 1, 33-35-4w, sd 1785 ft. Western Nat. Gas Co., Pitchard 1, 3-37-2e, dr 2240 ft.

WIBAUX—Johns & Hagan, sw 15-11n-57e, resumed at 700 ft.

LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
BOSSIER PARISH—		
R. L. Crook's Larkin 9, 14-19-11....	*	....
CADDO PARISH—		
Haynes Bros' Spell 2, 15-21-15	*	3194
Magnolia Pet. Co., Dillon 18, 23-21-15	*	....
DE SOTO PARISH—		
American Controlled Oil Co., Lanier 2, 5-11-11	*	....

BIENVILLE PARISH—S. P. Borden's L. & A. 2, 1-15-8, dr 1750 ft. Humble O. & R. Co.'s Anderson 1, 29-18-5, dr 3688 ft.

BOSSIER PARISH—J. R. Bahan's Bolinger 1, 32-23-11, arr to deepen 2647 ft. Delaware-Louisiana Dev. Co.'s Bolinger 4, 38-23-11, set 12-inch at 300 ft. Doern et al's Bolinger 1, 9-22-11, sd 3900 ft. H. S. Godwin Tr.'s Curtis 2, 36-17-13, sd 3257 ft; Curtis 3, 2-16-13, dr 250 ft; McDade 1, 36-17-13, rig. Wm. Gross et al's Stewart 1, 15-18-12, dr 2050 ft. Hamiter et al's Hamiter 1 10-23-13, sd 1870 ft. D. D. Johnson's Caddo-Bossier I. I. Co. 2, 13-17-14, dr 1100 ft. C. H. Lyon's Marks Meyer 1, 36-23-12, tested 15 at 3088 ft. J. S. McCullough's Hodges 6, 25-16-12, wosr 1548 ft. Northwest Louisiana Gas Co.'s Boliner 2 38-23-11, arr to deepen 2675 ft. Olmeda Gas Co.'s Mayer 1, 30-16-11, tested No. 1½ at 1940 ft. R. O. Ray's Werner 1, 7-17-11, lcn; Caplis 1, 25-16-12, set 12½-inch at 35 ft. Sligo Synd.'s Skannal 2, 14-17-12, tested No. 15 at 1635 ft. Triangle Drilling Co.'s Bulkley 1, 9-20-13, dr 2166 ft. Woodley Pet. Co.'s Whitehurst 1, ?-16-12, set 10-inch at 100 ft. Walker et al's Antrim 1, 28-22-13, sd 2737 ft.

CADDO PARISH—Bayou State Oil Co.'s Jolly C-1, 27-22-15, tested sw at 2377 ft. Bee Oil Co.'s Muslow 1, 29-20-15, wosr 2292 ft. J. W. Burton Tr.'s Caldwell 8, 18-21-15, dk. Belchic & Lasky's Sharp 4, 10-18-14, dr 2300 ft; Sharp 5, 10-18-16, lcn. W. D. Chew's State 6, 34-21-16, dk. J. T. Cox's Hall 1, 7-15-16, sd 1107 ft. Dixie Oil Co.'s Robertshaw 81, 13-21-15, sd 4148 ft; Clark 9, 14-21-15, wosr 3988 ft; Robertshaw 92, 13-21-15, r 4382 ft; Huckaby 4, 11-21-15, sd 4037 ft. Dobson et al's Rives 7, 5-20-15, tested sw at 1925 ft. Empire Gas & Fuel Co.'s Nicholson 1, 33-17-14, dr 3740 ft. Greenwood Prod. Co.'s Cushman & Bridges 1, 15-18-16, arr to deepen 912 ft. Wm. Gross et al's Baker 1, 35-17-16, sd 1148 ft. Gulf Ref. Co.'s Tyson 12, 14-21-15, trying to get returns at 3819 ft. Magnolia Pet. Co.'s Bell 2, 6-17-16, sd 3225 ft; Dillon 21, 23-21-15, lcn; Robertshaw 22, 23-21-15, coring 4177 ft. D. C. Richardson's Youree 6, 30- 20-15, sd 2305 ft. Simms Oil Co.'s Glassell 1, 23-20-15, set 6⅝-inch 2206 ft. Simplex Oil Co.'s Baird 3, 22-20-15, arr to abn 2265 ft. Shreveport Oil Corp.'s Muslow 3, 32-21-15, dr 2000 ft. The Texas Co.'s C. M. L. 47, 23-21-15, arr to deepen 3657 ft.

CALDWELL PARISH — Greenwood Prod. Co.'s Caldwell L. & T. Co. 1, 27-13-5e, dr 1900 ft.

CATAHOULA PARISH—Leonard Pet. Co.'s Knott 1, 32-11-8e, arr to deepen 4765 ft. The Texas Co.'s Tensas Delta Lbr. Co., B1, 4-10-6e, set 15½-inch 195 ft.

CLAIBORNE PARISH—El Dorado Chief Oil Co.'s Jones 1, 8-20-6w, dr 1900 ft.

DE SOTO PARISH—Gulf Ref. Co.'s Jenkins A-35, 35-13-12, set 6⅝-inch at 2363 ft. R. O. Roy's Lee 1, 33-14-13, dk. Williams et al's Fortson 2, 4-12-11, set 12½-inch at 104 ft.

EAST CARROLL PARISH—The Texas Co.'s Boone Live Oak 1, 11-20-12e, dr 1492 ft.

FRANKLIN PARISH—Louisiana Pet. Co.'s Daily 1, 6-11-7e, dr 20 ft. Pittsburgh O. & D. Co.'s Moore 3, 12-11-6e, sd 2501 ft.

GRANT PARISH—W. D. Ball et al's Calhoun 1, 9-7-4w, arr to test 950 ft. Swope et al's Fee 3, 18-9-1e, sd 1607 ft; Fee 5, 18-9-1e, wosr 1602 ft.

LA SALLE PARISH—Elbert Pet. Co.'s Hardtner & Tannehill 1, 34-11-2e, lcn. H. T. Taylor's Urania 6, 19-10-2e, dr at 1598 ft; Urania 7, 19-10-2e, dr 1200 ft.

MADISON PARISH—W. S. Smith's Yerger 1, 51-16-14e, sd 1700 ft.

MOREHOUSE PARISH—Elbert Pet. Co.'s Morehouse Plbg Co. 1, 40-19-7e, dr 2142 ft. Gulf Ref. Co.'s Higginbotham 1, 42-20-7e, dr 2225 ft; Weymond A-1, 7-18-6e, rig. Southern Carbon Co.'s Davis 1, 21-20-4e, rig. The Texas Co.'s Meyers 1, 15-22-7e, dr 2800 ft. United Carbon Co.'s Bastrop P. & P. Co. 1, 18-21-6e, arr to deepen 2413 ft.

NATCHITOCHES PARISH — Lawson & Pharris' Crowell Lbr. Co. 1, 22-5-6w, sd 2758 ft.

OUACHITA PARISH—Imperial O. & G. Co.'s Stubbs 6, 14-19-3e, dk. Jordan Drilling Co.'s Slagle 1, 48-18-4e, dk; Cole 1, 50-18-4e, set 8-inch 856 ft. Montgomery et al's Johnson 1, 30-19-4e, set 6-inch 2148 ft; Johnson 2, 31-19-4e, lcn. Natural Gas & Fuel Corp.'s McEnery 1, 21-19-4e, rig. Ouachita Nat. Gas Co.'s Patton 1, 33-19-3e, dk. Phillips Pet. Co.'s Nolan 2, 17-18-4e, dr 50 ft; School Fee 1, 16-16-4e, set 8-inch 820 ft. Pioneer O. & G. Co.'s Nolan 1, 17-18-4e, rig. Southern Carbon Co.'s Fairbanks 9, 34-20-4e, dk. J. O. White Tr.'s Schmidt 1, 3-15-4e, dr 2725 ft.

RAPIDES PARISH—Collins Bros.' Allen 1, 25-5-1w, sd 3010 ft. Glenmore Pet. Co.'s Fee 1, 1-2-2w, sd 3860 ft. Minnesota Oil Corp.'s Wettymark 1, 13-5-4w, sd 2400 ft.

RICHLAND PARISH—Dixie Oil Co.'s McCoy 1, 29-16-6e, retesting at 2492 ft. J. M. Fuller's Poise 1, 33-16-6e, lcn. Feazel & Hemler's Perdue et al 1, 21-16-6e, dr 1501 ft. Gulf Ref. Co.'s Millsaps 1, 8-17-6e, dr 3615 ft; Rhymes 3, 28-17-6e, dr 3631 ft. S. D. Hunter's McCoy B-1, 16-16-6e, dr 891 ft. Moody & Seagrave's McDonald 1, 9-15-5e, tested sw at 2864 ft; Sartor B-1, 9-16-6e, set 6-inch 2293 ft. Natural Gas & Fuel Corp.'s Sartor B-3, 19-16-6e, dk; Sartor B-4, 18-16-6e, lcn; Thomasson C-2, 21-16-6e, skidding dk; Thomasson C-3, 21-16-6e, pumping in mud to kill offset crater 2465 ft; Thomasson C-4, 21-16-6e, pumping in mud to kill offset crater 2466 ft. Oliver & Master's Morrison 1, 2-15-5e, dr 1150 ft; Hatch Heirs 1, 11-15-5e, dr 1150 ft. Ruston Drilling Co.'s Sartor B-1, 9-16-6e, dr 2300 ft; Alexander 1, 4-16-6e, lcn; Etheridge 1, 28-17-6e, lcn. Southern Carbon Co.'s Sartor 3, 18-16-6e, rig; Sartor Jr. B-1, 9-16-6e, set 6-inch 2280 ft. Woodley Pet. Co.'s Osborne 1, 3-17-7e, sd 3131 ft.

SABINE PARISH—Doern et al's Pickering 1, 17-4-11, sd 2025 ft. R. L. Gay's Mansfield 1, 15-7-14, dr 2496 ft. Magnolia Pet. Co.'s Hall 1, 33-10-12, set 8-in at 3150 ft. The Texas Co.'s Hamlin Est. 1, 28-10-13, dr 2116 ft. Zwolle O&G Co.'s Bowman Hicks 7, 11-7-14, blg 3931 ft.

UNION PARISH—Carter et al's Hudson 1, 7-23-1e, sd 700 ft. Industrial Gas Co.'s Lewis 1, 14-20-3e, tested ¶4 at 2200 ft; Simpson 1, 9-20-3e, set 6-in at 2077 ft; Harris 1, 24-20-3e, rig. R. W. Rhodes' Upshaw 1, 14-23-2e, dk. United Carbon Co.'s Peak 1, 7-20-4e, lcn; Trimble 1, 19-20-4e, set 12½-in at 197 ft.

WEBSTER PARISH—Allison et al's Lewis 1, 15-21-10, set 9-in at 3540 ft. Dixie Oil Co.'s Cox 1, 15-21-10, dr 3507 ft. Humble's Webb 2, 14-21-10, dr 4303 ft; Bodcaw A-2, 14-21-10, rig; Davis 6, 14-21-10, dr 3747 ft; Cox 3, 22-21-10, fsh 463 ft. S. A. Lane's Miles 1, 24-17-9, sd 1469 ft. Louisiana Oil Ref. Corp.'s Lindsay 4, 22-21-10, dr 3639 ft; Crichton 5, 21-21-10, set 8⅝-in at 3351 ft; Davis 1, 23-21-10, ¶20 at 4700 ft. C. H. Lyon's Porter-Wadley 2, 29-23-9, testing 2732 ft. Morris et al's Lewis 1, 15-23-9, sd 150 ft. Magnolia Pet. Co.'s Baker 2, 25-23-11, dr 2900 ft; Camp 1, 36-23-10, arr to deepen 2735 ft; Coyle 2, 21-21-10, dr 1004 ft; Cook 1, 2-22-11, dk; Sexton 1, 32-23-9, set 13⅜-in at 318 ft; Mixon 1, 22-21-10, dr 4379 ft; Wise 1, 30-23-9, dk; Aarnes Cox 3, 22-21-10, set 8⅛-in at 2851 ft; D. G. Cox 1, 22-21-10, recmtd at 4700 ft; W. Cox 5, 15-21-10, dr 659 ft; Merritt 5, 14-21-10, dk. Ohio Oil Co.'s Haynes 1, 30-23-9, lcn; Bodcaw 39, 15-21-10, set 8⅝-in at 3543 ft; Hodges 2, 23-21-10, lcn; Holloway 3, 23-21-10, arr to deepen 4411 ft. Palmer Corp.'s Mixon 1, 22-21-10, dr 3895 ft. Bruce Richardson's Mayfield 1, 20-23-9, set 10-in at 280 ft. Woodley Pet. Co.'s Duhe 2, 22-21-10, dk; Cox B-1, 23-21-10, tested ¶4 at 4695 ft.

WINN PARISH—Calvin Oil Co.'s Bodcaw 2, 9-11-4w, set 10-in at 60 ft. Roark et al's Southern Mineral Co. 4, 19-11-3w, set 15½-in at 42 ft.

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
MILLER COUNTY—		
Lenze et al, Dale 3, 23-15-26	*	3150
UNION COUNTY—		
C. E. Murdock, Murphy 2, 17-16-15	*	2117

ASHLEY COUNTY—South Ark. Nat. Gas Co.'s Holmes 1, 9-16-7, lcn.

BRADLEY COUNTY—Joe Hurley's Southern Lbr. Co. 1, 26-15-10, set 10-in at 21 ft. Johnson & Adams Southern Lbr. Co. 1, 12-12-12, 3200 ft.

CLARK COUNTY — W. M. Henry's Tr.'s Clark 1, 34-9-21, dr 1200 ft. McKenzie Oil Co.'s Eaken 1, 9-11-19, abn 633 ft.

CHICOT COUNTY—Loe Crawford et al's Cashion 1, 14-18-2, rig.

COLUMBIA COUNTY — Geo. Dawley's Gantt 1, 12-17-22, sd 1925 ft. Mitchell et al's Franks 1, 25-19-22, sd 150 ft. VanHagen Synd.'s Pickler 1, 19-19-12, sd 850 ft; Mason 1, 31-19-22, rig.

DALLAS COUNTY—Dedman et al's Hillman 1, 20-10-13, dr 1690 ft.

GRANT COUNTY—Jones et al's Meeks 1, 5-4-11, sd 1400 ft.

LINCOLN COUNTY—Pine Prairie O. & G. Co.'s Carter 1, 33-10-6, sd 2176 ft.

LITTLE RIVER COUNTY—Grote et al's Allen 1, 2-13-31, sd 2941 ft.

NEVADA COUNTY—Autrey Oil Co.'s Wells & Mays 1, 6-14-20, wosr 1188 ft. McDonald et al's Pelt 1, 9-15-22, plugged back to 2100 ft. J. J. O'Brien's Haynie B-5, 1-14-21, sd 1163 ft.

OUACHITA COUNTY — Buffalo Oil Co's Laughlin 1, 22-15-19, dk. Ohio Oil Co.'s Cramer 7, 22-15-16, dr 2558 ft. Sinclair Oil Co.'s Berry A-7, 33-15-15, tested ¶5 at 2656 ft. Skelly Oil Co.'s Umsted 10, 33-15-15, set 10-in at 60 ft. Timberlake et al's Carnes 1, 27-13-17, coring 1510 ft. F. B. Wood Tr.'s Spahr 1, 35-15-16, dr 2020 ft.

UNION COUNTY — Ark. Nat. Gas Co.'s Felsenthal 1, 11-17-14, set 10-in at 152 ft. Arkansas Drilling Co.'s Carroll 1, 1-17-14, arr to make drill stem test 2934 ft. O. W. Estes' Rowland 1, 14-17-14, swabbing 2999 ft. Grimes Bros.' Hill 2, 7-18-14, rig. H. L. Hunt's Gregory 1, 10-17-14, coring 3188 ft; Dykes 1, 21-18-12, arr to deepen 2970 ft. C. E. Johnson's Gregory 1, 10-17-14, dr 80 ft. E. M. Jones Stegall 1, 22-17-14, arr to deepen 3250 ft. W. R. Keever's Ezell A-6, 12-17-15, set 10-in at 63 ft. Lion O. & R. Co.'s Hays 8, 4-16-15, set 6⅝-in at 2466 ft; Murphy H-3, 9-16-15, dr 2440 ft; Rowland 1, 15-17-14, flowing 3212 ft; Rowland 2, 15-17-14, rig; Rowland 3, 15-17-14, set 10-in at 225 ft; Kelly 1, 9-17-14, dr 20 ft. Lyall et al's Stegall 1, 11-17-13, dr 3228 ft. Magnolia Pet. Co.'s Carroll 2, 1-17-14, sd 1500 ft; Carroll 3, 1-17-14, dk; Laney 3, 8-16-16, dk; Laney 4, 8-16-16, dk. Mellon Tr.'s Vanhook 1, 7-18-14, wosr 2206 ft; Bullock 1, 7-18-14, wosr 2169 ft. Mounta et al's Pratt 6, 8-18-16, wosr 2200 ft. C. E. Murdock's Gregory 2, 10-17-14, coring 3185 ft. J. O. Moore Tr.'s Pagan 1, 18-18-11, arr to test 2650 ft. Magna Prod. Co.'s Dumas 2, 11-17-14, dk; Dumas 3, 11-17-14, rig; Rowland 2, 14-17-14, arr to test 3233 ft; Dumas 4, 11-17-14, set 10-in at 108 ft. Ohio Oil Co.'s Crain 4, 1-17-14, dk; Pumphrey 2, 1-17-14, dr 260 ft; Goodwin 2, 2-17-14, sd 3054 ft; Adams 1, 11-17-14, rig; Lochnager 1, 11-17-14, lcn; Rowland 1, 15-17-14, dk; Smith 1, 1-17-14, dr 100 ft. Ouachita Natural Gas Co.'s Perdue 1, 33-16-13, lcn. Pure Oil Co.'s Gregory 2, 11-

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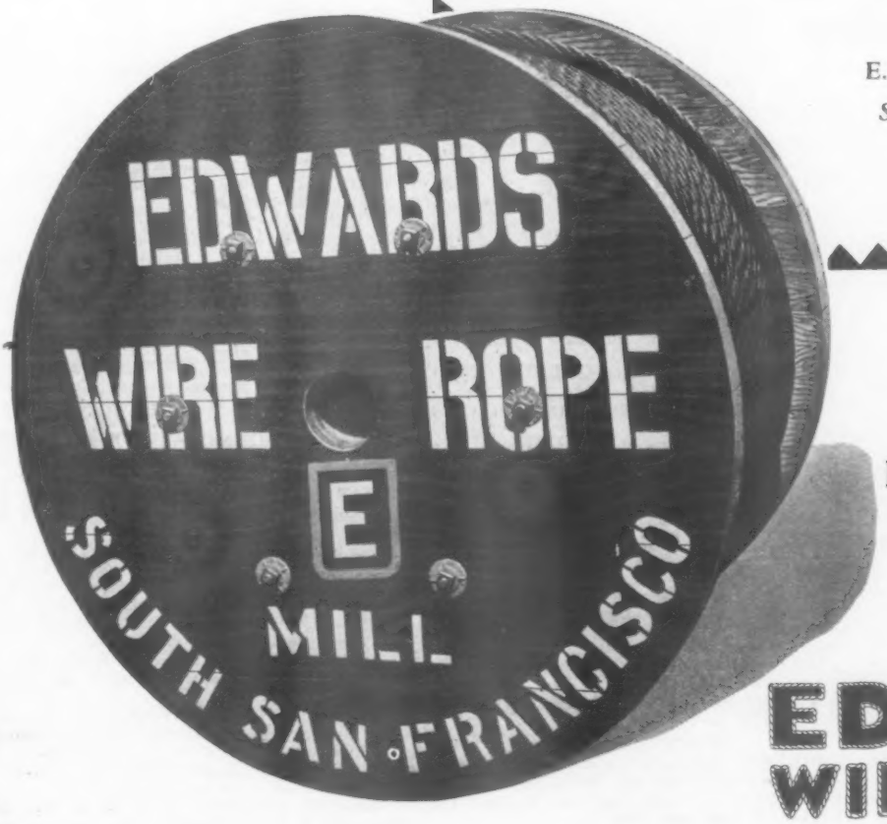

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Say you saw it in The OIL WEEKLY

17-14, set 10-in at 385 ft; Gregory 3, 11-17-14, arr to test 3187 ft; Gregory 4, 10-17-14, dr 200 ft; Gregory 5, 10-17-14, lcn; J. M. Gregory 1, 11-17-14, dk; Gregory Est. 1, 15-17-14, dk. Rhodes Tr.'s Union Saw Mill 1, 14-19-11, tested sw at 2794 ft. Rice et al's Heineman & Meyers 1, 23-18-16, rig. Rovenger Oil Corp.'s Perdue A-1, 10-17-14, set 10-in at 155 ft. Dr. Rushing et al's Gregory 2, 11-17-14, coring 3216 ft; Gregory 3, 11-17-14, set 10-in at 150 ft. Root Ref. Co.'s Jerry 1, 21-17-14 (formerly Simon et al's), set 10-in at 92 ft. Simmons et al's Green 1, 3-16-16, rig. Timberlake et al's Dumas 1, 11-17-14, dr 650 ft. F. B. Wood Tr.'s Spahr 2, 32-15-16, set 10-in at 61 ft.

NORTHERN CALIFORNIA

Company, Well and Location	Completion Initial Production Bbls.	Depth
SATICOY—		
Standard Oil Co., Schneider 1, 10-2-22	* 1245	

KERN COUNTY

ARVIN—Calif. Pet. Corp. 1, 22-31-29, new lcn.

BAKERSFIELD—Pacific Eastern Prod. Co.'s KCL 1, 6-30-28, sd 5640 ft; KCL 2, 6-30-28, plugged to 4390 ft; KCL 3, 6-30-28, new lcn.

BELRIDGE—Zurich Oil Co.'s 1, 18-28-22, sd 2790 ft.

BUTTONWILLOW—Milham Explo. Co.'s 5, 5-28-23, sr 2500 ft; S-7, 7-29-24, sd 4280 ft. Southern Calif. Gas Co.'s 1, 4-28-23, sdtr liner 2830 ft; 1, 10-28-23, lcn.

COMANCHE POINT—W. W. Stabler's 1, 23-32-29, fsh 2560 ft.

DELANO—North American Consolidated Oil Co.'s Wallace 1-A, 5-25-25, abn 5700 ft.

EDISON—General Pet. Corp.'s Kerwin 1, 5-30-29, dr 5325 ft. Midway Northern Oil Co.'s Brown 1, 29-29-30, dr 3375 ft.

GREENFIELD—J. E. O'Donnell's 1, 31-30-28, sd 4060 ft.

GOULD HILLS—Bomke and Ball's Larson 1, 19-29-20, trying for water shutoff, td 1600 ft. Cymric Oil Co.'s 2, 36-28-20, dr 435 ft. Exeter Oil Co.'s 1, 1-29-20, fsh 920 ft.

McFARLAND—General Pet. Corp.'s Stiles 1, 35-25-25, cmt 16-inch cas 995 ft.

McKITTRICK—No active wells in this area.

SHAFTER—M. McVEY'S 1, 8-28-25, rigging up.

SEMITROPIC—Semitropic Oil Co.'s 1, 21-26-22, will deepen from 1555 ft.

TEHACHAPI—Crusaders Oil Co.'s 1, 21-10-10, co 2370 ft.

WILLOW SPRINGS—Cy Wickers' 1, 7-9-15, dr 200 ft.

SANTA BARBARA COUNTY

GOLETA—Barnsdall's Edwards 2, 1-4-30, producing some gas and oil, td 2455 ft.

SANTA BARBARA—Channell Oil & Dev. Co.'s 1, 29-4-27, running 4¼-inch cas to 5900 ft, td 6025 ft. Petroleum Explo. Co.'s 1, 20-4-27, dr hard sand 3946 ft. Tequsquet Oil Co.'s 1, 3-9-32, dr shale 2175 ft.

SUMMERLAND—Summerland Oil Co.'s 1, 22-4-26, trying for water shutoff, td 3045 ft.

VENTURA COUNTY

AVENUE—Star Pet. Co.'s Canet 1-A, 13-3-23, 8⅝-inch cas cmt 5947 ft.

BARSDALE—Triple A Investment Co.'s Elkins 1, 5-3-19, dr 2277 ft.

CAMARILLO—American Oil Co.'s 1, 33-2-20, dr 168 ft.

FILLMORE—All wells in this district sd.

OJAI—California-Ventura Oil Co.'s 4A, 33-4-23, dr shale 1018 ft. Continental's Fox 1, 21-4-22, dr shale 250 ft; T-1, 22-4-22, dr shale 488 ft. J. W. Hackworth's M-1, 11-4-23, sdtr dr pipe 2215 ft.

OXNARD—Shell's Grub 1, 22-2-22, dr gray sand 1750 ft; Lambert 1, 22-2-22, dr 150 ft.

PIRU—Bolsa Chica Oil Corp.'s 1, 5-4-18, rig. Petroleum Securities' Diablo 1, 26-5-10, dr 4570 ft.

RINCON—Scott Pet. Co.'s 1, 35-4-25, dr 4437 ft.

RED MOUNTAIN—Miley Explor. Co.'s Casitas 2A, 7-3-23, repairing rig, td 755 ft.

SANTA PAULA—W. W. Bryant's Anlauf 1, 21-4-21, sd 1240 ft; Anlauf 2, 21-4-21, fsh for 6¼-inch cas 495 ft.

SATICOY—Standard's Varoni 1, Lot 86, Rancho Santa Clara Del Norte, new lcn.

SIMI—E. F. Exline's Seaton 1, dr shale 1566 ft. Shell's Berylwood 1, 32-3-20, making production test 7185 ft; Strathern 1, 6-2-18, coring 4790 ft.

SOUTH MOUNTAIN—Ring Pet. Corp.'s Converse 1, dr shale 4143 ft.

MISCELLANEOUS

COLOUSA COUNTY—Colus Oil Co.'s 1, 31-15-4, changing to steel rig, td 260 ft. Continental's 1A, 31-18-4, fsh for dr pipe 4300 ft.

HUMBOLDT COUNTY—Northern Counties Oil Co.'s 1, 36-2-1, dr sand 2104 ft.

KINGS COUNTY—Milham Explo. Co.'s 1, 2-22-17, fsh for dr pipe, td 7235 ft. All other wells in this district sd.

MONTEREY COUNTY—Marland's N-1, 32-23-11, sdtr dr pipe 2710 ft, td 2795 ft.

SAN LUIS OBISPO—North Star Oil Co.'s 1, 32-31-13, co 3250 ft. Panorama Oil Co.'s 1, 7-31-21, sr 2115 ft. Paso Roble Oil Co.'s 1, 34-27-15, redr 1700 ft. Rinfield's Miley 1, 15-29-17, sd 3785 ft. San Luis Syn.'s 1, 29-31-13, dr hard sand 2850 ft. Union's Russ 1, 34-32-15, dr by shale 2775 ft. Waklin Pet. Co.'s 1, 27-27-11, sd 2610 ft.

SAN MATEO COUNTY—Shell's Butts 1, 21-6-5, gas showings 2585 ft; Cowell 2, 8-6-5, cmt 6¼-inch cas 1560 ft.

SONOMA COUNTY—Shell's Mossi 1, 8-5-7, cmt of cave in bottom of hole, td 2140 ft.

TULARE COUNTY—Ducor Drilling Co.'s 1, 29-23-27, dr on iron 3812 ft, td 4160 ft. King-Tulare Synd.'s 1, 19-21-23, rigging rotary 3000 ft.

SOUTHERN CALIFORNIA

Company, Well and Location	Completion Initial Production Bbls.	Depth
CYPRESS—		
Ohio Oil Co.'s Miller 1, 9-4-11	* 6080	

CLAREMONT—Claremont O. & G. Co.'s 1, sd 1130 ft.

CALABASAS—Easton & Smith's Miller 1, 19-1-17, dr shale 1460 ft.

COSTA MESA — Mesa Pet. Co.'s 1, sd 2980 ft.

CYPRESS—Ohio Oil Co.'s Miller 1, 9-4-11, abn 6080 ft.

DAVIDSON—Calif. Well Drilling Co.'s Del Amo 1, 11-4-13, 4¾-in cas recmt 7555 ft.

DOMINGUEZ — Dominguez Extension Oil Co.'s 1, 22-3-13, sd 5510 ft.

EL SEGUNDO — Southern Calif. Drilling Co.'s 1, will deepen from about 3400 ft., former depth 4865 ft, dr pipe sdtr.

FULLERTON — Shell's Stern 1, 22-3-10, failed on production test 5005 ft, will deepen.

HAWTHORNE — San Clemente Oil Co.'s Peck 1, co from 5175 to 5765 ft.

HUNTINGTON BEACH — Calnan Pet. Corp.'s S and W. 1, sd 5107 ft.

INGLEWOOD—Hurst Oil Corp.'s 1, 28-23-14, sd 3740 ft.

LANCASTER—John B. Harding's 1, 28-7-11, co 975 ft.

LYNWOOD—Security Pet. Co.'s 1, 13-3-13, sd 5025 ft.

MONTEREY PARK—Monterey Park Petroleum Co.'s 1, plugged to 3600 ft for prod test.

NEWHALL—W. W. Stabler's Castaic 1, sd 3410 ft.

PUENTE HILLS—Anchor Pet. Co.'s Hudson 1, dr sand 2494 ft.

SAN FERNANDO—Shell's Mission 2, 4-2-15, dr sand 1475 ft.

SAN JOSE HILLS — D. and B. Oil Co.'s Amar 1, plugged to 2600 ft.

SEAL BEACH—George F. Getty's 15, dr brown shale 5732 ft.

SAN JUAN CAPISTRANO — O. K. Carr's Foster 2, sd 4185 ft.

TELEGRAPH CANYON—Quadra Pet. Co.'s MJM 1, sd 4210 ft.

WATTS—Southwest Pet. Corp.'s Ramsaur 1, sd 4300 ft.

WATSON—White-Behr Oil Co.'s Watson 1, produced water on prod test, td 5300 ft.

WESTMINSTER—McCollom and Taylor's (Prairie) 1, 13-5-11, fsh for dr pipe 2315 ft.

YORBA—Standard's Y. L. W. 1, 27-3-9, dr up iron 5815 ft.

MISCELLANEOUS

RIVERSIDE COUNTY—Hemet Pet. Corp.'s 1, dr hard sand 2760 ft. Spindletop Oil and Gas Synd.'s 1, dr sand 3282 ft. Trabuco Oil Co.'s 1, dr hard sand 3488 ft.

SAN BERNARDINO COUNTY — Western Pacific Oil Co.'s 1, dr shale 3070 ft.

SAN DIEGO COUNTY—Davenport O. & G. Co.'s 1, dr hard sand 515 ft. Torrey Pines Oil Co.'s 1, dr sand 1817 ft. S. S. Turner's Bailer 1, dr shale 720 ft.

KANSAS

BARBER COUNTY—T 30, R 14w, Sec 27, Rowland et al's Pickens 1, owd, ne cor nw ne, dr 3435 ft. T 31, R 12w, Sec 17, Merriman et al's Winters 1, c e½, dr 3625 ft. T 33, R 12w, Sec 19, Schaffer et al's Boggs 1, c sw, dr 5640 ft. T 33, R 13w, Sec 2, Schaffer et al's Carter 1, c se se, fsh 3980 ft. T 34, R 13w, Sec 20, Barton Oil Co.'s Blunk 1, c ne nw, dr 3540 ft.

BARTON COUNTY—T 17, R 11w, Sec 34, McJolton et al's Evanston 1, se c nw, r. o. g. T 20, R 13w, Sec 12, Everette & Wiley's Ward 1, nw c sw, sd 3940 ft.

BUTLER COUNTY—T 24, R 3e, Sec 22, Fleming et al's Brainard 1, ne c nw, lcn. T 24, R 8e, Sec 5, Mathews et al's Harsh 1, ne c sw, sd 900 ft. T 25, R 4e, Sec 18, Wichita Drlg. Co.'s Joseph 1, ne c se nw, ts 2730-36 ft, 400 ft oih. T 27, R 3e, Sec 24, La Robb Oil Co.'s Baysinger 1, ne c sw, rig. T 28 R 8e, Sec 21, Burford & Brimm's Ferris 1, sec ne sw, lcn. T 29, R 4e, Sec 21, E. Wilcox et al's Holcomb 1, nec se nw, sd 1456 ft.

CHASE COUNTY—T 21, R 7e, Sec 9, Grener, Fowler et al's Carson 1, ne c, dr 2410 ft.

CHAUTAUQUA COUNTY—T 32, R 8e, Sec 15, Roth & Faurot's Hanil 1, nw c sw nw, lcn.

CLARK COUNTY—T 32, R 21w, Sec 21w, Sec 21, Watchorn O. & G. Co.'s Stephens 3, c e l w½ nw nw, dr 2700 ft.

CLOUD COUNTY—T 6, R 4w, Sec 6, Concordia Oil Co.'s Murdock 1, se c, sd 3590 ft.

COFFEY COUNTY—T 22, R 14e, Sec 8, Finney et al's Mitchell 1, se c ne, sd 1705 ft. T 22, R 15e, Sec 11, Clark et al's Douglas 1, nw c se ne, dr 1235 ft.

COWLEY COUNTY—T 30, R 3e, Sec 3, Vickers Pet. Co.'s Daniels 1, nw c ne, sd 1650 ft. T 30, R 6e, Sec 20, Allison & Fitzwilliams' Manley 1, ne c nw se, sd 1685 ft. Sec 36, Herron et al's Marshall 1, owd, sw c ne, dr 1834 ft. Sec 18, Lewis Gas Prod. Co.'s Cook 1, ne c sw, dr 1630 ft. T 33, R 4e, Sec 4, White Oil Co.'s White 1, sw c ne, dr 2230 ft. T 34, R 3e, Sec 10, Shawver et al's Amen 1, nw c, dr 3250 ft.

DICKINSON COUNTY—T 16, R 4e, Sec 2, Skow & Ritchey's Will 1, c nw nw, lcn. Sec 18, Gilliland Oil Co.'s Schlessner 1, c sw ne, dr 1600 ft.

ELK COUNTY—T 28, R 13e, Sec 22, Price et al's Thompson 1, c e l se sw, sd 400 ft.

ELLIS COUNTY—T 12, R 17w, Sec 25, Derby Oil Co.'s Weigle 1, c nw, dr 3035 ft T 13, R 19w, Sec 21, Thomas & Moncrief's Boettcher 1, c sw, lcn.

FRANKLIN COUNTY—T 16, R 18e, Sec 17, Smith, Thrice & Fisher's Owens 1, c e l e½ e½, sd 1450 ft. T 17, R 17e, Sec 25, Omar O&G Co.'s Bush 1, se c sw, lcn.

GEARY COUNTY — T 12, R 7e, Sec 10, Pioneer Pet. Co.'s Chase 1, se c, dr 2320 ft.

GREENWOOD COUNTY — T 25, R 12e, Sec 12, Sheedy et al's Gilroy 1, sw c se, dr 1700 ft. T 26, R 11e, Sec 28, Paul & Parker's Wiley 1, sw c se nw, spd and sd. T 28, R 12e, Sec 1, Swanson et al's Mayes 1, se c nw, ne, sd 1600 ft.

GRAHAM COUNTY—T 8, R 25w, Sec 27, Gulf Coast Drlg Co.'s St. John 1, owd, swc nw se, dr 3490 ft.

HARPER COUNTY—T 34, R 6w, Sec 24, Amerada Pet. Corp.'s Mendenhall 1, c se se, dr 5050 ft.

JACKSON COUNTY—T 8, R 14e, Sec 3, Smith et al's Wabunce 1, ne c nw, dr 1600 ft.

JEFFERSON COUNTY—T 9, R 19e, Sec 13, Northern Counties' Edwards 1, se c nw nw, sd 2405 ft. T 10, R 17e, Sec 19, Wichita Oil Co.'s Simpson 1, nw c sw sw, rig.

LABETTE COUNTY—T 33, R 17e, Sec 1, Cowdell et al's Hornbeck 1, sw c ne sw, sd 1375 ft.

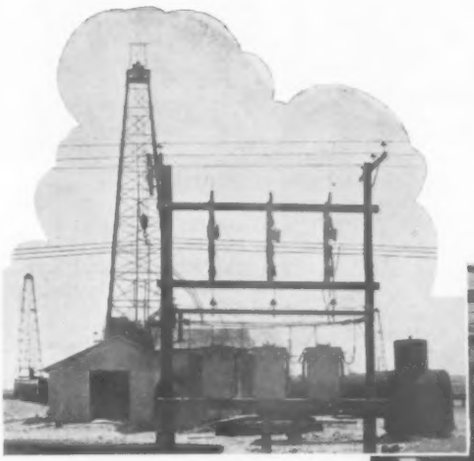
McPHERSON COUNTY—T 17, R 1w, Sec 18, Galt-Brown et al's Fross 1, c ne, rigging. T 20, R 3w, Sec 20, Polar Oil Co.'s Gray 1, c nw, spd and sd. T 21, R 3w, Sec 9, Herron et al's Voshell 1, nc c, spd and sd.

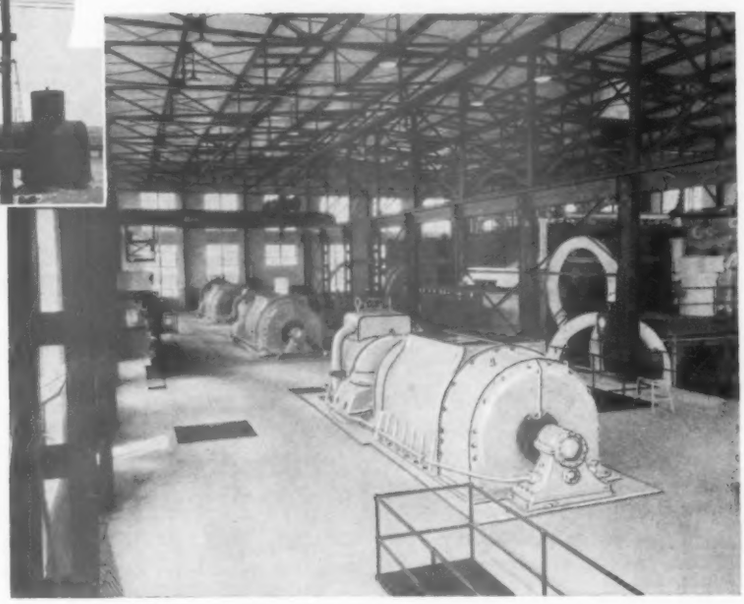
MARION COUNTY—T 17, R 3e, Sec 13, Rosenthal et al's Talchman 1, nw c sw sw, spd

The deepest well in the world

—now down more than 8200 feet—
is being drilled with electric power
furnished by the Pecos Valley Power
& Light Company—

the largest electric generating plant in West Texas





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Electricity reduces shut down time to a minimum . . . far less delay than you can expect from any other type of power . . . no water of fuel shortages, always plenty of power with perfect drilling control.

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Here is a partial list of customers whose electric power is furnished by the Pecos Valley Power & Light Company: Gulf Production Company, Big Lake Oil Company, Texon Oil and Land Company, Marland Oil Company of Texas, Simms Oil Company, Chaplin Refining Company, The California Company, Humble Oil and Refining Company, Southern Pipe Line Company, Texas Company, Tidal Oil Company, Reagan Purchasing Company, Gulf Pipe Line Company, Richmond Drilling Company, Cotter-Sawtelle Drilling Company, Roxana Petroleum Company, Kirby Petroleum Company, Grayburg Oil Company, Magnolia Petroleum Company.

Pecos Valley
Power & Light Company

General Offices: Fort Worth Nat'l Bank Bldg., Fort Worth, Texas *Plant:* Girvin, Texas

and sd. T 19, R 4e, Sec 17, Frank et al's Reed 1, nw c, td 2841 ft, pb 2400 ft, sd.

MEAD COUNTY — T 33, R 28 w, Sec 9, Blackwell O&G Co.'s Lilly 1, c se, dr 3752 ft.

MORRIS COUNTY — T 14, R 7e, Sec 32, Klein et al's Barber 1, se c nw, rig. T 16, R 9e, Sec 22, Lambert et al's Southard 1, sw c se, lcn.

NEMAHA COUNTY—T 3, R 11e, Sec 19, Nemeha Oil & Gas Co.'s Myers 1, nw c, sd 3050 ft.

OSBORNE COUNTY—T 9, R 15w, Sec 30, Davis et al's Pruter 1, se c sw, dr 3265 ft.

OSAGE COUNTY — T 15, R 15e, Sec 3, Barber et al's Lease 1, c se se, sd 260 ft. T 15, R 16e, Sec 27, West et al's Bailey 1, swc ne, sd 600 ft. T 17, R 17e, Sec 8, Mull Vit Dev. Co.'s Neil 1, nwc sw ne, sd 2931 ft.

POTTAWATOMIE COUNTY—T 9, R 8e, Sec 7, Shaw et al's Washington 1, se c, lot 17., rig. T 10, R 12e, Sec 11, Crawford et al's St. Mary 1, sw c, sd 2290 ft.

RENO COUNTY—T 22, R 4w, Sec 6, Danciger et al's Williams 1, ne c sw se, rig.

RILEY COUNTY—T 10, R 7e, Sec 20, Welton Oil Co.'s Thierer 1, nw c, sd 3028 ft.

ROOKS COUNTY — T 8, R 16w, Sec 14, Krueger et al's Poor 1, ne c, spd and sd.

RUSH COUNTY—T 17, R 17w, Sec 27, Valerious O&G Co.'s Schreverman 1, c nw, dr 1200 ft.

SEDGEWICK COUNTY—T 26, R 1w, Sec 12, Gypsy, Marland et al's Wright 1, se c ne se dr 1825 ft.

SEWARD COUNTY—T 33, R 33w, Sec 14, Ash et al's Son 1, owd, ne c, dr 2660 ft.

SHERMAN COUNTY—T 7, R 40w, Sec 20, Hanson et al's Murry 1, owd, ne c sw nw, dr 2990 ft.

SUMNER COUNTY—T 33, R 3w, Sec 22, Otstot Dev. Co. et al's Bartlow 1, se c, sd 1860 ft. T 34, R 2e, Sec 1, Endfield & Foster's Houston 1, c ne sw, dr 1915 ft. T 34, R 2w, Sec 23, Gypsy Oil Co.'s Douglas 1, ne c se nw, tc 4493-99 ft, prod 200 bbls first 8 hours, now dr d. T 34, R 3w, Sec 4, Jarvis et al's Wernecke 1, se c sw, dr 4630 ft. T 34, R 4w, Sec 11, Jarvis et al's Wycoff 1, sw c nw, dr 4582 ft. T 35, R 1e, Sec 9, Otstot et al's Volker 1, nw c ne, rig.

TREGO COUNTY—T 13, R 21e, Sec 20, Central Commercial Oil Co.'s Ellis-King 1, ne c sw ne, sd 315 ft.

WABUNSEE COUNTY—T 11, R 10e, Sec 24, Doric Oil Co.'s Jones 1, ne c sw, sd 1530 ft. T 13, R 12e, Sec 15, Eskridge Oil Co.'s Henderson 1, ne c sw ne, sd 3700 ft.

WOODSON COUNTY—T 24, R 16e, Sec 3, Fees et al's Roberts 1, nw c ne, sd 1418 ft.

OKLAHOMA

GRANT COUNTY—T 28 n, R 3w, Sec 6, Otstot Dev. Co.'s Snyder 1, ne c, sd 4518 ft.

HARPER COUNTY—T 27n, R 21w, Sec 24, A. F. Kopisch Oil Co.'s Selman 1, ne c se, spd and sd.

WOODS COUNTY—T 27n, R 15w, Sec 20, Sooner State Oil Co. & E. R. Black's Marcum 1, c sw, spd and sd.

GRANT COUNTY—T 27n, R 5w, Sec 18, J. W. Bailey et al's Custard 1, c se, ts 4835-47 ft, 800,000 ft gas, co 30 ft off bottom.

KAY COUNTY — T 27n, R 2w, Sec 23, Boucher et al's Cooper 1, se c, water 2580-90 ft, hfw 3815 ft, sd.

GRANT COUNTY—T 26n, R 4w, Sec 34, Sooner State Oil Co.'s Royce 1, swc nw, sd 550 ft.

KAY COUNTY—T 26n, R 2e, Sec 32, J. A. Vincent & National Union Oil Co.'s McNeal 1, nw c ne, sd 2795 ft.

HARPER COUNTY—T 25n, R 22w, Sec 14, Hoffer Oil Co.'s Cooper 1, nw c se, sd 4182 ft.

GRANT COUNTY—T 25n, R 4w, Sec 22, Cowden's Vallner 2, nec se ne sw, lost tools at 5640 ft, sd.

KAY COUNTY — T 25n, R 1w, Sec 15, Tonkawa Dev. Co.'s McDaniels 1, se c, dr by bit.

NOBLE COUNTY—T 24 n, R 3e, Sec 11, Geo. Miller et al's Howe 1, c nw se, rust. T 21n, R 1w, Sec 7, R. L. Corley's Williams 1, se c ne sw, sd 1920 ft. T 20n, R 1w, Sec 32, Marland Oil Co.'s et al's Kidd 1, nwc sw, dr 4345 ft.

CIMARRON COUNTY—T 5n, R 5e, Sec 21, Ramsey Pet. Co.'s State Land 1, sw c ne sw sw, 8-in at 4001 ft, sd 4360 ft. Sec 27, Ramsey Bros.' State Land 1, c nw ne, 4090-4140 ft, show 35 bbls, hfw 4680 ft, pb to 4040 ft, sd. T 2n, R 9e, Sec 2, Fenton. Brookins & Flowers' Smaltz 1, sw c ne ne, spd and sd.

TEXAS COUNTY—T 2n, R 18e, Sec 23, Connelly, Trammel & Danner's Graves 1, ne c sw sw, sd 315 ft. T 1n, R 18e, Sec 11, Three Way Oil Co.'s Price 1, se c nw, ts 3318-58 ft, hfw, sd 3490 ft. T 1n, R 19e, Sec 5, Trammell, Connelly & Danner's Taney 1, se c nw, sd 280 ft.

WOODWARD COUNTY — T 24n, R 17w, Sec 32, Otstot Dev. Co.'s Simmons 1, se c, sd 1500 ft.

GARFIELD COUNTY—T 24n, R 6w, Sec 9, Pulse & Beamer's White 1, se c nw, sd 4720 ft. T 24n, R 3w, Sec 14, Sagar Oil Co.'s Garsarch 1, se c, dr by cas 4767 ft. T 22n, R 5w, Sec 3, Ashby & Barr's Swinery 1, nw c, sd 740 ft.

ELLIS COUNTY—T 21n, R 25w, Sec 9, Oklahoma Northern Oil Co.'s 1, c se nw, sd 300 ft.

WOODWARD COUNTY — T 21n, R 19w, Sec 15, Burgoyne Bros.' 1, sw c se ne, sd 800 ft. T 21n, R 21w, Sec 25, Sharon's Elmore 1, sw c, sd 2778 ft.

GARFIELD COUNTY—T 21n, R 4w, Sec 12, Beopple et al's Schriver 1, c e l sw sw ne, sd 1650 ft. T 20n, R 4w, Sec 9, Marland's Looman 1, ne c se, sd 5735 ft; Sec 12, Marland's Miller 1, sw cor, sd 4586 ft.

DEWEY COUNTY—T 18n, R 15w, Sec 9, Huckelby & McCoy's Perfect 1, ne c, dr 3430 ft.

LOGAN COUNTY—T 18n, R 4w, Sec 6, Davis & Brown's Woods 1, ne c se, lcn. T 18n, R 3w, Sec 33, Haley & Consolidated Drlg. Co.'s Quier 1, se c sw, sd 3905 ft. T 17n, R 1e, Sec 20, T. B. Slick's Signs 1, nw c sw, comp. D. & A. 5062 ft. Sec 28, T. B. Slick's Berry 1, sw c se, td 5730 ft, pb to 4700 ft.

KINGFISHER COUNTY — T 16n, R 7w, Sec 6, Gault-Brown Oil Co.'s Campbell 1, c nw se, dr 4226 ft. T 16n, R 6w, Sec 27, Crawford & McKenna's Sturgeon 1, ne c sw, sd 4226 ft. T 16n, R 5w, Sec 26, Gault-Brown Oil Co.'s Johnson 1, c nw, sd 4512 ft.

LOGAN COUNTY—T 16n, R 1w, Sec 28, Blackford O&G Co.'s Lair 1, c s l n½ se, sd 1675 ft. T 15 n, R 1w, Sec 12, Bu Vi Bar's Kirkpatrick 1, c sw, dr 5365 ft.

CANADIAN COUNTY—T 14n, R 6w, Sec 9, A. D. Spears' Piatt 1, se c ne, sd 3223 ft.

OKLAHOMA COUNTY—T 13n, R 3w, Sec 18, Slick & Bailey's Lufkin 1, c ne se, co 4112 ft. T 12n, R 3w, Sec 15, Cromwell et al's Thompson 1, se w c ne ne, 1000 ft cmt and tubing in hole, sd 6870 ft.

CANADIAN COUNTY—T 11n, R 7w, Sec 9, Ramsey Bros.' Newman 1, c s l ne, mvg in rotary 4680 ft. T 10n, R 6w, Sec 1, J. M. V. Bailey's Robinson 1, c ne nw, spd and sd.

OSAGE COUNTY — T 26n, R 7e, Sec 30, Prod. & Refs. & C. B. Peters' 1, se c ne, dr, 500 ft. T 23n, R 10e, Sec 7, Sheeder's O&G Co.'s 1, c ne, dr 2440 ft.

PAYNE COUNTY—T 19n, R 3e, Sec 32, Garber, Pulse & Gloyd's Widows 1, ne c se nw, sd 1200 ft.

LINCOLN COUNTY—T 17n, R 3e, Sec 20, Willis O&G Co.'s Gun 1, nw c se, ts 4636-77 ft, water and sd. T 17n, R 5e, Sec 27, Flynn &Morgan's Smith 1, se c ne nw, D. & A. td 4122 ft. T 13n, R 4e, Sec 16, Bu-Vi-Bar's School Land 1, c ne se, sd 4500 ft.

TULSA COUNTY—T 17n, R 13e, Sec 1, E. A. Hawley's Taylor 1, se c ne, abnd 200 ft.

CREEK COUNTY—T 14n, R 9e, Sec 1, L. C. Wheeler & King's Morton 1, se c nw, lcn.

OKFUSKEE COUNTY—T 12n, R 10e, Sec 8, Blakely et al's Yarhola 1, sw c se nw, dry and abnd. T 11n, R 10e, Sec 4, Moose & Daniels' Stidham 1, sw c nw, sd 622 ft.

MUSKOGEE COUNTY—T 13n, R 17e, Sec 34, Elk Drlg. Co.'s McKee 1, c s l se se se, sd 160 ft.

MUSKOGEE COUNTY—T 13n, R 18e, Sec 33, L. T. Haynie's Linder 1, c se, dr 1870 ft.

PITTSBURG COUNTY—T 9n, R 16e, Sec 32, Pattison et al's McDuff 1, sw c nw se, ¶3 at 4472-4525 ft, dr 4976 ft.

HASKELL COUNTY—T 9n, R 18e, Sec 10, Marion Oil Co.'s Sanders 1, nw c ne sw, sd 2250 ft.

LATIMER COUNTY—T 5n, R 18e, Sec 15, Limestone O&G Co.'s Murray 1, sw c, sd 1700 ft.

CLEVELAND COUNTY—T 10n, R 2w, Sec 22, Cromwell & Franklin's Donavan 1, c sw, sd 4706 ft.

POTTAWATOMIE COUNTY—T 10n, R 3e, Sec 12, Sikes, Kilgore & Shaffer's Ives 1, c se se, dr 5470 ft.

SEMINOLE COUNTY—T 10n, R 6e, Sec 3, Furhman's Davis 1, sw se, bldg rig. T 10n, R 7e, Sec 6, Blackwell O&G Co.'s Bean 1, se c ne sw, dr 3936 ft. Sec 18, Shaffer et al's Jones 1, sw c ne, dr 2720 ft.

POTTAWATOMIE COUNTY—T 8n, R 2e, Sec 24, Superior Oil Corp.'s Jones 1, sw nw ne, ur 6-in 4390 ft. T 8n, R 4e, Sec 1, Amerada Pet.'s Gravel 1, sw se ne, hfo at 4114-95 ft, td 4485 ft, hfw, pb to 4429 ft, shot 40 qts 4340-80 ft, swb 110 bbls.

HUGHES COUNTY—T 5n, R 9e, Sec 17, E. Bauer et al's Penn 1, nw c sw ne, bldg rig.

CLEVELAND COUNTY—T 7n, R 1w, Sec 15, Sooner State Oil Co.'s Vandeveer 1, ne nw sw, 8-in at 2994 ft and sd.

POTTAWATOMIE COUNTY—T 7n, R 2e, Sec 17, T. B. Slick's Spangler 1, nw se nw nw, dr 2877 ft.

SEMINOLE COUNTY—T 7n, R 6e, Sec 7, Simon & Beam's Palmer 1, ne nw ne, rig.

POTTAWATOMIE COUNTY—T 6n, R 2e, Sec 10, Davis, Detrick et al's McGahey 1, se c nw, sd 4988 ft. T 6n, R 5e, Sec 16, T. B. Slick's School Land 1, se c, cmtg 8-in 3794 ft. Sec 20, Roxana Pet. Corp.'s Jackson 1, ne c se ne, rur.

SEMINOLE COUNTY—T 6n, R 6e, Sec 1, T. B. Slick's Moore 1, sw ne sw, 2870-75 ft, hfw, pb to sand 2760-75 ft.

HUGHES COUNTY—T 5n, R 9e, Sec 17, E. W. Whitney's Huddleston 1, se c sw, fsh 850 ft. Sec 20, Noble O&G Co.'s et al's Wickett 1, se c, dr 2575 ft.

GARVIN COUNTY— T 4n, R 1e, Sec 15, Dixie Oil Co.'s Perkins 1, se c sw, dr 5436 ft. T 4n, R 3e, Sec 10, Garland Oil Co.'s Strickland 1, sw nw sw, fsh 2690 ft.

PONTOTOC COUNTY—T 4n, R 6e, Sec 13, American O&R Co.'s Wright 1, nw ne ne, 6-in at 2317 ft.

HUGHES COUNTY—T 4n, R 9e, Sec 14, Clark & Cowden's Burrow 1, c nw ne, dr 3084 ft.

GARVIN COUNTY—T 3n, R 1e, Sec 12, Magnolia's Vaughn 1, nw sw nw, sd 5562 ft.

PONTOTOC COUNTY—T 3n, R 8e, Sec 10, Douglas Oil's Johnson 1, c nw nw, dr 550 ft.

COAL COUNTY—T 2n, R 8e, Sec 5, Wichtex Oil Co.'s Folsom 1, c nw nw, lcn.

MURRAY COUNTY—T 1n, R 2e, Sec 17, Revels & McGee's Wolfe 1, nw c, dr 756 ft.

COAL COUNTY—T 1n, R 8e, Sec 35, W. E. McGraw et al's Patton 1, sw c se ne, set 6-in 1660 ft. T 1n, R 9e, Sec 24, Galbreath et al's Jones 1, sw c se, spd and sd.

CADDO COUNTY—T 10n, R 12w, Sec 28, Magnolia's Shelby 1, sw c, dr 2873 ft.

BECKHAM COUNTY—T 9n, R 22w, Sec 32, O&H Pet. Co.'s Barnes 1, nw c ne, owd, show oil 2210 ft, dr 3125 ft.

GRADY COUNTY — T 9n, R 5w, Sec 13, Remington's Fulton 1, sw c ne, sd 720 ft.

KIOWA COUNTY—T 7n, R 15w, Sec 35, David Malernee's Van Kikrland 1, nw c, sd 695 ft. T 6n, R 15e, Sec 6, Johnson McDowell's 1, c sw ne, dr 1120 ft.

CADDO COUNTY—T 6n, R 12w, Sec 29, W. J. Hartley's Gilbreath 1, se c nw se, owd, sd 3394 ft.

KIOWA COUNTY—T 5n, R 14w, Sec 17, Blue Mountain Oil Co.'s Jones 1, se nw nw, sd 625 ft.

GRADY COUNTY — T 4n, R 7w, Sec 21, Commercial Drlg. Co.'s Crisman 1, c ne ne, dr 1850 ft.

COMANCHE COUNTY—T 3n, R 10w, Sec 24, Jolly-Ogg's Sparlin 1, se c ne, abnd 3009 ft.

STEPHENS COUNTY—T 2n, R 5w, Sec 20, Martin & Smythe's Vestal 1, c ne se, mvg in tools.

COMANCHE COUNTY—T 1n, R 12w, Sec 14, Greene et al's Wilson 1, dr 3335 ft.

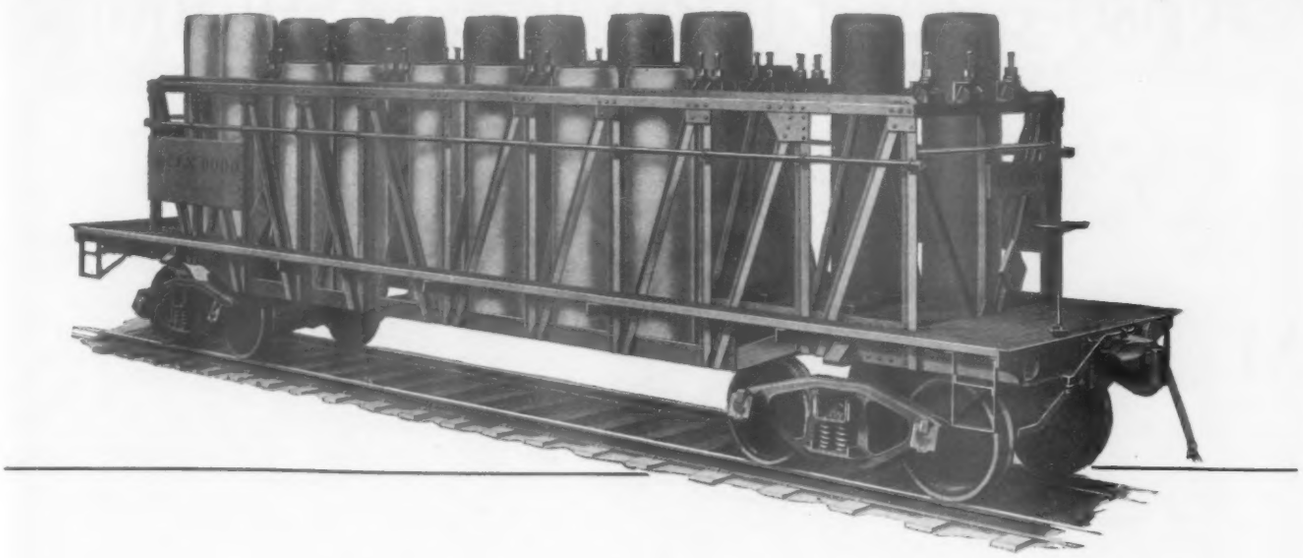
JACKSON COUNTY—T 1s, R 20w, Sec 23, Stanley McGregor's 1, sw c nw, lcn.

KIOWA COUNTY — T 2s, R 16w, Sec 6, Landfair's 1, se sw se, sd 2464 ft.

STEPHENS COUNTY—T 3s, R 7w, Sec 7, Pace et al's Absner 1, nw c, abnd 2267 ft.

JEFFERSON COUNTY—T 5s, R 8w, Sec 28, Amerada's Emerson 1, nw c se sw, dr 1235 ft.

MARSHALL COUNTY—T 4s, R 4e, Sec 35, Wirt Franklin Pet. Corp.'s Foster 1, se c sw sw nw, dr 415 ft. T 5s, R 4e, Sec 11, Bilbo's Chapman 1, ne c nw ne, sd 380 ft.



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Creosote Retards Ravages of Sulphuric Acid on Tank Roofs

Process of impregnation removes moisture from wood fibres and replaces it with a coal tar product which tends to neutralize acid

By J. D. ISAACKS

MANY oil companies have found it advisable to construct the roofs for their field storage tanks of wood rather than steel, in the territories where hydrogen sulphide gas is prevalent. Due to its extreme activity, this gas has made the steel roof a hazardous installation. Consequently, the wooden roof has been selected because it offers more resistance to the attacks of this acid than does the steel roof.

Much might be said yet, in favor of a steel roof when its exposed surface has been properly prepared for the application of a protective coating. One paint manufacturer and a tank company have been conducting some extensive experiments and research work along these lines. They have made material progress.

However, the fact remains that the steel roof continues to be a hazard. And if the oil companies and the tank building companies continue to install wooden roofs, it might be worth their consideration to investigate the use of treated lumber for this purpose to see if a longer life can not be given the roofs than that which has been so far obtained where untreated lumber has been installed.

Sulphuric acid in its various concentrations reacts quickly in contact with exposed surfaces, particularly in conjunction with free oxygen or moisture. Untreated lumber must necessarily carry a certain amount of moisture in the fibre regardless of whether it be whole heart or sap. If properly treated, creosoted lumber will afford protection to the fibre throughout a penetration of from 2½ to four inches.

Creosoting—What It Is

In the preparation of this material, untreated timber is inserted into a vacuum cylinder and the moisture extracted, immediately following which heated creosote oil is injected into this chamber under pressures up to several hundred pounds. This process drives this coal tar product into the fibre of the wood replacing the moisture which has been extracted under the vacuum process. The creosote oil works itself into the timber and completely surrounds the fibrous structures, giving it a protective coating against the action of the agents of decay.

Timber treated in such manner should materially withstand the actions of these extremely corrosive substances over a long period. Creosote oil is considered almost inert chemically, which characteristic insures a measure of protection to the fibre which it surrounds. Since the corrosive agent does not readily unite with the creosote oil, there is a certain amount of resistance offered to its inroads. The fibre which is that part of the structure carrying the load is thereby encased in this protective coating and before the corrosive element can show any material action on the fibre itself, it must break down this protective coating of creosote oil.

Lumber for Roof

A bill of material required to construct a roof on a 55,000 barrel tank will include approximately 38,000 board feet of lumber. Of this footage there are 69 pieces of 6 by 6 averaging 32 feet long. The remainder of this material is dimension stuff and for the present, that which is used in tank roof construction must be whole heart lumber and timbers to give any satisfactory service. This is expensive lumber to buy, particularly for a questionable life of service.

However, in the use of creosoted materials for this type of construction, a much lower priced lumber could be used to start with because the treatment of sap lumber, even short-leaf pine, gives a durable material which would effectively withstand the actions of corrosive agencies over a long period. Therefore, some of the cost of creosoted material would be offset by the fact that a cheaper grade lumber can be used to start with. The longer life which could be expected from properly treated timbers would more than offset the difference in cost between treated materials of any kind and untreated materials of any kind.

It is estimated that there are some 400 tanks in corrosive territories, now equipped with timber roofs which in the course of a not unreasonable length of time will have to be replaced. It is also estimated that had these roofs been constructed of creosoted materials they would have given at least twice the life that untreated materials will give.

Creosoted materials have long been known for their ability to ward off corrosion and decay and for the fact that they are immune to attacks of termites and other wood-boring insects. Some of the oldest bridge structures in the Coastal and other territories are of creosoted materials. Oil companies long ago adopted creosoted materials for the construction of ocean terminals. They have given already sufficient service to demonstrate the economy of such adoption.

One other factor which enters into the use of creosoted materials for tank roof construction is the fact that these 6 by 6 timbers could be replaced with creosoted poles to give an equal or greater strength at a comparatively low cost. It is much easier to get a pole in from 30 to 46 foot lengths than it is to get a 6 by 6 timber. This would eliminate splicing and the additional work necessary to prepare the sides of a round pole for nailing would not materially affect the labor required in the construction of the roof.

Creosoting companies have plants established at strategic points all over the United States. It should not be more difficult to get creosoted materials than to get untreated materials. Certainly if the use of creosoted materials for this type of construction would assure sufficient market to justify a creosoting company carrying sufficient stock of the materials required to meet the demands, to say the least it would give promise of much longer life to the tank roofs than the use of untreated materials.

To get the best service and the largest factor of safety from the use of creosoted lumber, it is advisable to use timbers, which, after having been treated, have been allowed to cure in the yards for at least 90 days. This curing removes the fire hazard and gives not only assurance of more lasting material but offers a large measure of protection against fire. Properly cured treated timbers are more resistant to fire than either untreated timbers or uncured timbers which have been treated.

The creosoting plants could easily treat and work up sufficient materials to carry a complete stock of timbers and boards in their yards, which had cured for 90 days or more if any promise of sales could be had. In fact many of these plants carry stocks of cured materials on hand at all times.

Specifications for treated materials will be furnished by any of the companies engaged in that business. Research departments are maintained by them and oil companies will find ready

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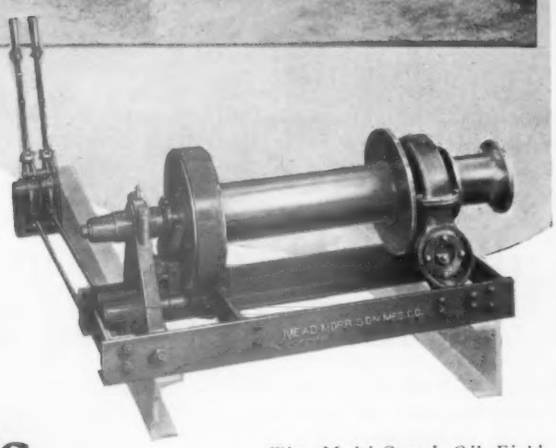

The Multi-Speed Oil Field Winch—No. 915

The Standard of the Oil Fields

The Mead-Morrison No. 915 Multi-Speed Winch is standard in the oil fields, handling the heaviest loads with ease and dispatch. A winch is mounted on the chassis midway between the wheels and at the most flexible point of the frame. To stand up under this condition on the rough roads and fields, the Mead-Morrison Winch has true three point suspension and ball-and-socket construction assuring no breakage of drum or binding of drum shaft. The asbestos lined brake is powerful and will hold any load the winch can lift.

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co-operation by calling on them. Materials can be bought through the lumber yard with which the oil company does its regular business or from the plants direct. Either method will work out satisfactorily.

Bill of Material Required in the Construction of a Timber Roof on a Steel Storage Tank of 55,000 Barrels Capacity

Number of Pieces	Description
1	6 x 6—38
8	6 x 6—34
16	6 x 6—32
44	6 x 6—30
24	5 x 12—12
20	5 x 12—14
24	5 x 12—16
364	2 x 8—16
52	2 x 8—14
16	2 x 8—12
56	1 x 6—12
70	1 x 6—14
160	1 x 6—16
16	1 x 6—18
725	1 x 12—16

It is readily seen from the above bill of material, that 69 pieces, averaging over 30 feet in length could be supplanted by round creosoted poles to give greater strength at lower cost and with increased convenience. This represents 20 per cent of the bill of material, on which considerable saving in time, and an increase of strength might be had.

Below is shown a table of approximate shipping costs of creosoted materials from Orange, Texas, compiled by the Texas Creosoting Company. Other companies can furnish rates from their respective locations.

	Per M.
Tampico, Mexico	$11.50
Maracaibo, Venezuela	32.25
Shreveport, La.	6.50
Eldorado, Arkansas	11.50
Smackover, Arkansas	11.50
Healdton, Oklahoma	17.25
Tulsa, Oklahoma	17.25
Pyote, Texas	15.25
Odessa, Texas	15.25
Panhandle, Texas	15.25
White Deer, Texas	15.25
Borger, Texas	15.25
Del Rio, Texas	14.75
Midland, Texas	14.75
Laredo, Texas	14.75
Fort Stockton, Texas	16.75
McCamey, Texas	16.75
Rankin, Texas	16.75
Wichita Falls, Texas	13.75
Corpus Christi, Texas	13.75
Ranger, Texas	12.75
Fort Worth, Texas	12.75
San Antonio, Texas	12.75
Port Arthur, Texas	3.00
Houston, Texas	4.50

Hull Field Production Lower Than First of the Year

Houston—Since the first of this year the Hull field has dropped to third place in production among the fields of the Gulf Coast, relinquishing second place to Pierce Junction, while Spindle Top ranks first.

Whereas the average daily production at Hull was approximately 12,000 barrels during January, the present rate of yield is down to about 10,500 barrels daily. On the other hand, Pierce Junction's daily average is now around 11,000 to 12,000 barrels, being somewhat erratic, due to rather frequent completion of new or workover wells; while its average daily yield during January was only a little over 10,000 barrels.

According to a recent weekly report, the average daily production of the field, by companies, was as follows:

Company	Bbls.
Republic Production Company	4600
Gulf Production Company	3000
Humble Oil & Refining Company	535
Empire Gas & Fuel Company	415
Yount-Lee Oil Company	380
Texas-Vacuum	365
Texas-Higgins	290
The Texas Company	285
Macon Oil Company	215
Hull Oil Company	120
Houston Production Company	110
W. B. Flynn	40
Sun Oil Company	25
J. H. Antilley	20
Total	10,400

Present activity at Hull comprises eight drilling and workover operations. During the past week there was one completion, Empire Gas & Fuel Company's Barngrover 28, a 425-barrel pumper.

Republic Production Company is drilling at 2200 feet in its Dolbear 104; at 2610 in the Dolbear 70; and is preparing to work over the Dolbear 79. Houston Production Company's Taylor 4, a workover, is drilling at 4900 feet. The Texas Company's Hannah-Vacuum 6 is drilling at 3160 feet. Gulf Production Company is drilling at 2340 feet in the Phoenix Development Company 91, and is rigging up to work over No. 51 on the same lease.

Hull is one of the larger salt domes of the Gulf Coast, and is also one of the most well-defined domes, with producing wells forming an almost unbroken circle around the salt deposit. The field still has vast producing possibilities, with large acreage proven but undrilled. The Republic Production Company particularly has extensive developed proven acreage.

Hull is one of several Coastal fields where high gas pressure is encountered. Among the recent completions in the field was a gas well, Hannah 7, of The Texas Company and Vacuum Oil Company. When completed it was estimated to have a gas pressure of 1500 pounds. At present about 1,000,000 feet of gas is being taken from the well daily, part of it being sold to the Gulf Production Company, and the remainder of the 1,000,000 feet being used in drilling operations of The Texas Company.

Acid Well Would Prevent Sulphur Attack on Tank Bottoms

(Continued from page 76)

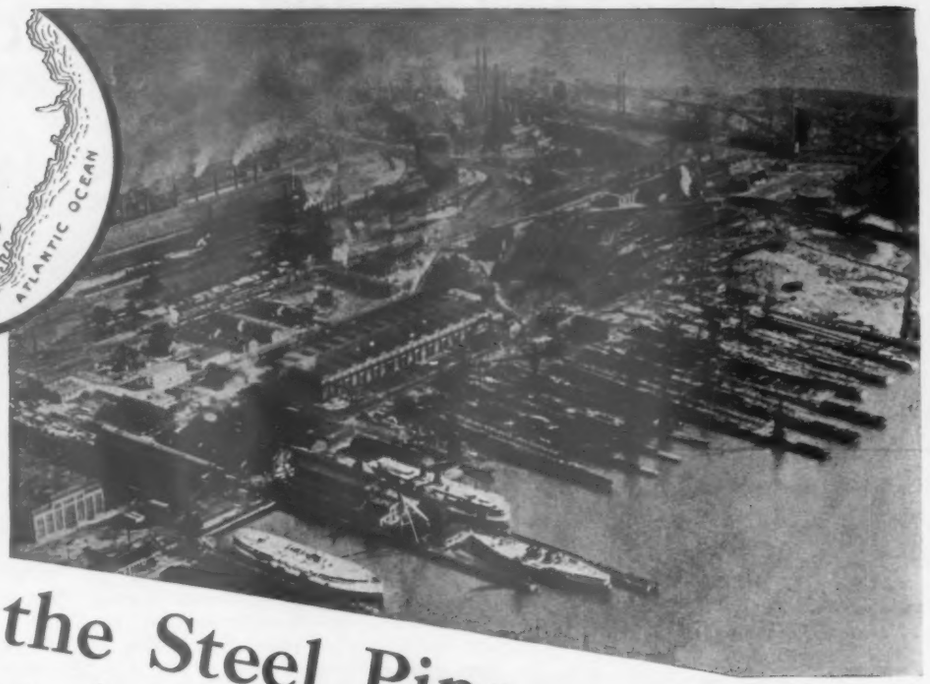
which would be suspended a pulley; to this pulley would be fitted a support for a plank about 15 inches wide. The second tube would fit into the first one and there would be holes at suitable distances, so that by pushing through a pin the tube could be raised to the desired height, say anything from 21 to 40 feet, according to the depth of tank in which the work is to take place. Two of these standards would be set up in a tank at a distance of 16 or 18 feet, and a plank 15 inches wide and say 20 feet long would serve as a platform for the workmen between the two suspended supports, which could be raised or lowered by pulleys, enabling work to take place from a 40-foot tank roof down to any distance above the bottom. Each of the four pieces constituting this outfit would weigh less than 100 pounds and could, if desired, be passed through a manhole 24 inches diameter. Hinged supports about eight feet from the base could be fitted to give stability. A design for this outfit is now being prepared by the Aluminum Company of America and should be shortly available.

Cleaning Tanks

Then coming to the cleaning of the tank, if it has contained crude oil it should first be cleaned with kerosene or steam; after that it would have to be sandblasted and if refineries and production companies would invest in a few sandblasting apparatus they would find this method of cleaning by far the most effective and inexpensive one. After sandblasting, the chosen preservative could be applied and there would then be every prospect that adequate results would be obtained from a properly made protective.

It is my opinion that the enormous expense of corrosion in the oil industry from the inside can be reduced to a minimum by such methods and that for every dollar expended three, four or five can be saved in repairs and renewals. The chief obstacle to such protection is that the oil companies are not organized psychologically and materially to deal with this problem. On the other hand the necessity to prevent all this damage is increased owing to the higher content of sulphur in oils; also, the materials for preventing all this damage are now available. So it remains for the oil companies and their officials to adjust their minds and their operations to efficiently use these new materials and to effect the enormous savings in replacements and repairs which have now become possible.

The Pipe Mills of Bethlehem Steel Company are located at Maryland Plant, Sparrows Point, Md., near Baltimore. This plant is on tidewater, facilitating prompt shipment by water as well as by rail.



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Sole Exporter of our Commercial Products

AT Maryland Plant, Sparrows Point, Md., near Baltimore, a complete stock of Bethlehem Steel Pipe is maintained ready for shipment. An order for any but a most unusual quantity or size can be filled immediately.

Three trunk-line railroads enter Maryland Plant, consequently remarkably prompt inland shipments can be made. Shipment by water to points on the Atlantic Seaboard, Gulf, or Pacific Coasts is equally prompt, as the location of Maryland Plant on tidewater permits the loading of pipe directly into the steamer at the plant.

When you require a rush shipment of steel pipe, phone or wire the nearest Bethlehem District Office, and the Bethlehem Steel Pipe you require will be started on its way immediately.

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BETHLEHEM STEEL PIPE

Evaporation Losses and Their Reduction

By JAMES H. WESTCOTT*

ONE of the former largest losses or waste of crude oil came about through the evaporation of crude petroleum after it was taken from the wells. These losses occurred in eevry branch of the oil industry and were more or less continuous until the refined products were finally distributed. Most evaporation losses resulted from the use of open tanks, non-vapor tight tanks and those with wooden roofs.

General evaporation losses include those from the spray which was carried away by the air as the tanks were filled with crude oil from overhead pipe connections. This was a needless waste and one which was frequently quite large.

They also include ebullition losses that resulted when crude oil which contained gas, and sometimes air, was forced into the tanks through connections at the bottom. The gas and the air arose through the oil in the form of bubbles which broke at the top of the liquid. The finely divided particles of oil were thus projected into the air and vapor above the crude and were whipped away in such capor form. Some of the particles of oil were so light that they were carried off as liquid from tanks which were nearly full.

Evaporation losses proper consisted of that part of the oil which became vaporized and arose from the surface and was dissipated and lost into the atmosphere under former handling and storage conditions.

Opportunities for the loss of this vapor can be shown by tracing the crude oil from the wells. After being brought to the surface of the ground, the crude was run through pipes under pressure into the stock, flow, settling or receiving tanks situated on the leases. This crude contained considerable gas and sometimes air and water but there was no chance for its evaporation in these pipes.

The gas and air were separated from the crude oil in these settling tanks some of which were capped with nearly vapor tight covers. Short stacks were fitted in these roofs through which the gas escaped into the air. Where water and basic sediment were contained, they were separated from the crude oil in either wooden or steel unhoused or unprotected tanks without roofs or with very poor ones. Important evaporation losses occurred from these tanks.

Where over two per cent of water was emulsified in the oil, it was necessary to use some special means for breaking up the emulsion so that the water could free itself through gravity. Electricity, chemicals, centrifugal force and heat were used to effect this separation. All these means necessarily involved some evaporation of the crude, but it was comparatively small except when heat was used in the dehydration plants.

After the oil had passed through the settling tanks and the dehydration of plant if necessary, it was run into the storage tanks an the leases which had a capacity of from 60 to 1800 barrels each. While in these lease storage tanks, important evaporation losses occurred as the oil was held for an average of five days before it was taken into the pipe lines, and the roofs of these tanks were not vapor tight. The largest amount of evaporation took place from these lease storage tanks, except where dehydration by heat was used.

From these lease storage tanks the crude oil was then run through the small gathering pipe lines into the pipe line storage tanks. No evaporation could take place in the pipe lines, but some loss from ebullition did occur when the crude was forced under pressure into the pipe line storage tanks. However, they were larger and of a better type than the lease storage ones and their roofs were more or less gas tight.

After the oil had stood in these pipe line storage tanks, it was then run through the large main or trunk pipe lines or into tank cars for transportation to the refineries or to large tank farms. In its passage through the trunk pipe lines, the oil passed through a number of pumping stations. Originally, all the oil was pumped into and withdrawn from storage tanks at the pumping stations. So that the crude oil in passing through a long pipe line was flushed into tanks many times, with distinct losses from ebullition and evaporation.

If the crude oil did not go directly to the refineries through the pipe lines, it was stored on large tank farms in 35,000 and 55,000 barrel steel tanks or in much larger earthen or cement ones which were fitted with more or less gas tight roofs. Here the evaporation was much slower. But as the oil was sometimes held for long periods, there was a continuous evaporation loss which decreased from year to year.

The refineries were required to store enough oil to run them for some time and their storage tanks were similar to the ones on the tank farms. Some evaporation losses occurred from these tanks and also in the spent gases from the stills. Very important evaporation losses occurred when it was necessary to store gasoline at the refineries and some losses took place in the filling of tank cars with gasoline.

Evaporation losses were not the same for the various grades of crude oil. The high gravity oils which contain the largest amount of the lighter or gasoline fractions suffered more from evaporation than the heavier ones. An oil which had been standing in tanks for a long time, and which had lost most of its lighter fractions thereby became less subject to evaporation losses until it finally reached a point where further losses did not occur.

A careful survey and study of evaporation losses was made by the Federal Government prior to 1918 and the results were well expressed in its report for that year as follows:

"If we definitely knew the volume of useful hydro-carbon products that 'vanish into thin air' from the wells, the transportation systems, the storage farms and the refineries in the United States in one single year's time, we might well be staggered by the size of the figures. To form some realization of their gigantic proportions, one needs only to stand in the vicinity of a flowing well newly brought in and witness the volumes of gases rising like exaggerated heat waves from the well itself, from the flow tanks in which the oil is being collected, from the sump into which it has overflowed and from every surface exposed to the atmosphere. The greatest unmeasured loss, of course, takes place in the vicinity of the well. Nevertheless, this loss continues in a large measure, especially as regards light oils, through the gathering systems, the transportation systems and the receiving tanks at the refineries and even from the oil of low gravity, there is a substantial stream of light hydrocarbons escaping from its surface as long as it remains in storage."

This gives a very fair picture of the conditions prior to 1918. Some idea of the loss of volume and the decrease in the gravity of the crude oil by evaporation from the permanent steel storage tanks of that time can be formed from the results of these Government investigations. In Oklahoma and Kansas, where these steel tanks were covered with wooden roofs overlaid with roofing paper and sheet iron, the average losses are shown in the next table.

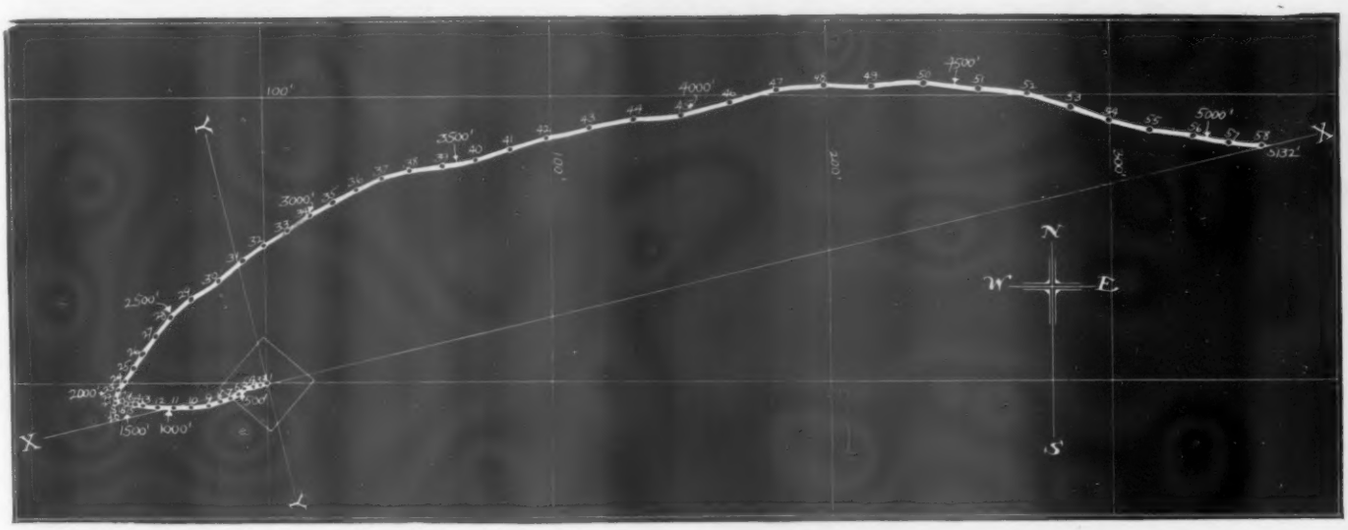
TABLE 36

Evaporation Losses Reported in Oklahoma and Kansas Prior to 1918 from Permanent Storage Tanks With Wooden Roofs.

	Average Loss
First two years	1.83% of volume a year
Next five years	0.79% " "
Following two years	0.39% " "

*Reprinted by permission of the author from his recent book on Oil Conservation.

ALWAYS USE A GRANT—THEY DO WHAT OTHERS CAN'T



Well Surveyed by Alexander Anderson, Fullerton, Calif.

436 feet from perpendicular!

...yet a perfect cement job was secured in this well due to the remarkable performance of a GRANT Type "C" UNDERREAMER

IN commenting on the above performance at Jergens No. 15, Signal Hill, W. V. (Bill) Wildman, well known General Superintendent of the A. T. Jergens Syndicate, said, "I chose the Grant Underreamer for this difficult job largely because of its safety features. We underreamed over 2000 feet of full gauge 8½ inch hole without a hitch and secured a perfect cement job. We are exceptionally well satisfied."

The Grant Underreamer used was an 8¼ inch Type "C." Underreaming was started at 3050 feet through 8¼ inch 43 lb. D.B.X. Casing. The underreamer followed a 7½ inch bit and underreamed an 8½ inch hole. The casing went in "like 2 inch into 10 inch." The well was brought in doing 2300 bbls, of 29.1° clean oil. Study the survey shown above. It tells a big story about underreamer performance that is based on facts and not claims. Why not ask us for the full story of how Grant underreamers can save you underreaming grief. Remember, building underreamers is our sole business—not a side line.

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GRANT

"UNDERREAMER HEADQUARTERS"

Say you saw it in The OIL WEEKLY

Attendant losses of gravity were from 1.6 to 3.5 degrees Baume. The fresh oil was of an average gravity of 34.4 degrees Baume and this had decreased to an average of 32.4 degrees at the time of the last observation.

A company which handled large quantities of crude petroleum and which operated extensively in Oklahoma and Texas kept its crude oil moving so constantly that exact figures of evaporation losses could not be determined. But they were estimated as follows:

TABLE 37

Estimated Evaporation Losses by a Larger Handler of Crude, from Oklahoma and Texas Oil, Prior to 1918.

Grade of Crude—	Gravity, °Baume	Annual Loss
Distillate	40 to 50	2.0%
North Texas and No. Louisiana light crudes	30 to 40	1.5
Gulf Coast heavy crudes	18 to 25	0.7
Oklahoma crude, light	38 to 41	2.5
Oklahoma crude, medium	30 to 38	1.0

Data obtained for the preparation of this 1918 Government report from eight 37,500 barrel steel tanks, having wooden roofs covered with tar paper over which sheet iron was nailed, are shown in Table 38. These tanks were filled with Illinois crude of an average gravity of 33.1 degrees Baume which had remained in storage for four years. The losses shown do not include any evaporation of the crude oil before it had reached these large storage tanks.

TABLE 38

Evaporation Losses from Eight Wooden-roofed Steel Tanks Filled with Illinois Crude, Prior to 1918.

Period Year	Av. Loss in Gravity °Baume	Av. Loss in Gravity Per Cent	Av. Loss of Volume Barrels Per Tank	Av. Loss of Volume Per Cent
First	0.91	2.75%	1,007	2.766%
Second	.45	1.39	476	1.308
Third	.42	1.32	344	.944
Fourth	.11	.35	215	.588
Total	1.89	5.81	2,042	5.606
Average	.47	1.45	510	1.402

The evaporation losses from certain fresh California crude oil in 1913-1916, inclusive, stored for very short periods of from 5 to 30 days in large steel tanks with wooden roofs, were at the annual rate of between 0.6 and 0.72 per cent. for heavy oils of 13.4 degrees Baume and between 11.32 and 20.08 per cent. for California light oil of a gravity from 22.9 to 27.9 degrees Baume. In 1913 and 1914 one tank was reported to have shown a loss at the annual rate of 30.07 per cent. from crude oil of a gravity from 23.9 to 28.5 degrees while another tank's loss was at the annual rate of 25.2 per cent. from oil between 25.9 and 27.5 degrees Baume. These percentages appear to have been excessive and were probably caused by the special conditions of the tanks.

However, the actual yearly losses could not have run as high as these annual rates for these lighter crudes as the evaporation losses during the first month are the largest and they gradually decrease in the remaining months of the year.

A resume of these investigations of the Bureau of Mines is shown in table 39. They indicate the very substantial conservation effected by the all-steel tanks then coming into use over the steel tanks covered with wooden roofs. For 55 to 60 degrees distillate, the savings effected were from 23.44 to 24.04 per cent. of the volume a year while on 30 to 38 degrees crude, they were 0.61 per cent.

A large seepage loss was included in the 6.96 per cent. figure for the unlined earthen reservoir in California. There are no seepage losses from steel tanks or from well constructed concrete lined earthen reservoirs. But there existed in those days some unlined earthen tanks from which these losses were important. The amount of crude which was so wasted cannot be estimated properly, as the oil was not usually measured as it flowed from the wells. Instances are reported where these unlined reservoirs had to be abandoned even in the very heavy crude oil fields on account of these seepage losses. In one case the oil was found to have penetrated into the earth to a depth of over 20 feet in a short time.

In the Kern River field in California conservation effected by the all steel tanks then coming into use over the steel tanks the seepage and evaporation losses from heavy oil of between 14 and 16 degrees Baume in a 1,000,000 barrel reservoir which was kept practically full, was found to average 6.96 per cent. a year over a period of six years. After this reservoir was lined with concrete, these losses were reduced to an average of 2.112 per cent. a year. As oil was being constantly put in and taken out, it appears that the seepage loss which was prevented by the concrete lining amounted to 4.848 per cent. a year, or 48,480 barrels. That was an important saving. The cost of this lining was only 5 cents per barrel of capacity, so that the oil saved in one year at $1.00 a barrel practically paid for the concrete lining.

In the years 1912-1916, inclusive, covered by this report, the progressive companies in the oil industry were not only trying to but were actually conserving crude oil and the high gravity distillates by reducing these evaporation losses through the erection of all steel tanks instead of the wooden roofed ones commonly used. This saving as shown in Table 39 amounted to 84.3 per cent. of the previous losses of high gravity distillate and to 37.9 per cent. of those of high gravity crude oil.

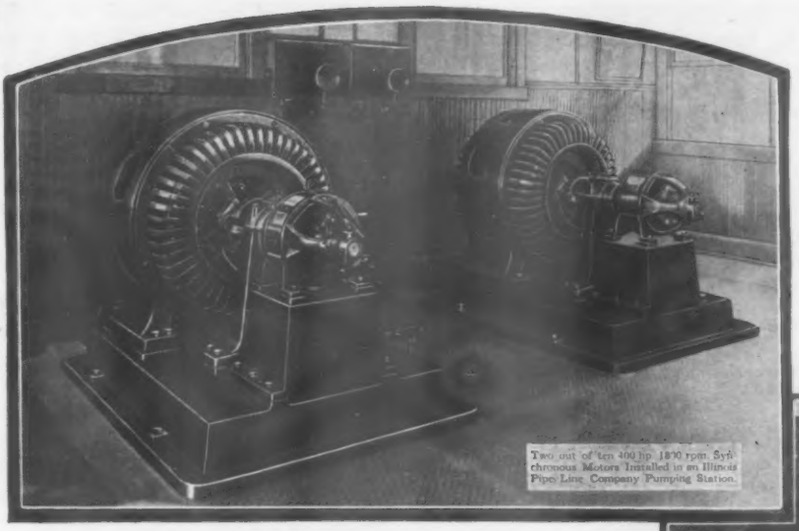
Experiments were also being made with water sealed roofs. Tanks were built with a flat roof, riveted and caulked and made water tight, and placed about six inches below the tops of the sides of the tanks. Water was kept in constant circulation on these roofs which reduced the temperature of the contents of the tanks and thereby kept down the evaporation losses. The saving effected was 86.5 per cent. of the evaporation to 55 to 60 degrees distillate which occurred from the wooden roofed steel tanks.

These water seals were also tried out on some small receiving tanks. Reports on 100 barrel tanks showed a reduction

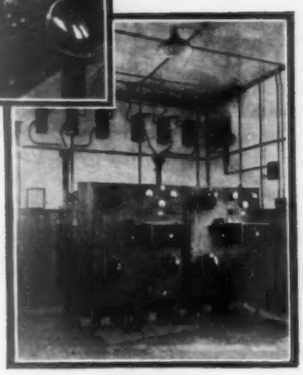
TABLE 39

Summary of Losses of Oil in Storage by Evaporation from the Report of the Bureau of Mines in 1918.

Gravity of Oil	Type of Tank	Average Yearly Loss	Remarks
55 to 60 distillate	Wooden roofed steel tanks	27.8%	
55 to 60 "	All steel	4.36	Plain top, no water seal
55 to 60 "	" "	3.76	Water seal
43 to 50 "	" "	2.00	
44 to 44.5 crude	Wooden roofed steel tanks	2.02	Pennsylvania crude
38 to 41 crude	All steel	2.50	Oklahoma crude
30 to 38 "	" "	1.00	Texas and Louisiana crude
30 to 38 "	Wooden roofed steel tanks	1.61	Oklahoma and Kansas crude
33 "	Ditto	1.40	Illinois crude
18 to 25 "	"	0.70	Gulf Coast crude
22 to 28 "	"	15.60	Fresh California crude; annual rate based on a few days' storage
18 "	"	5.52	California crude
14 to 16 "	Unlined earth reservoir, wooden roof	6.96	California crude
14 "	Concrete lined reservoir with wooden roof	.95	California crude
13.4 "	Ditto	.66	California crude



Two out of ten 400 hp. 1870 rpm. Synchronous Motors Installed in an Illinois Pipe Line Company Pumping Station.



First—
in the field for pipe line pumping

WESTINGHOUSE synchronous motors have made good in the strenuous duty of driving high pressure, high speed centrifugal pumps in a recent long-distance pipe line pumping electrification.

They have fully justified the expectations of the pipe line company that had the vision to foresee the economical advantages of electric drive.

These motors are now showing positive economies over older drives on account of:

Lower Installation Cost—Much lower first cost of building and equipment.

Reduced Maintenance Costs—Wear and tear on rotating machines much less than on reciprccating type.

Lower Labor Costs—Big reduction in operating force.

Liberal Design—Because of unforeseen changes in pumping conditions, some of these 400 hp. motors, installed in Texas, were successfully operated at 465 hp. continuously.

Constant Speed Operation—Maintain constant synchronous speed regardless of changes in load.

Further evidence of their unusually satisfactory service is found in the fact that various additional orders, covering a total of 37 duplicate motors, have been awarded to Westinghouse.

We shall be glad to send additional information. Ask for Leaflets 20312 and 20344.

The installation of these motor-operated pumps increased the capacity of an 8-inch pipe line from 15,000 to 22,000 barrels of oil per day.

Push-button operated magnetic starters perform all starting operations on the motors automatically and protect them against abnormal pipe line conditions.

Westinghouse Electric & Manufacturing Company
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of the evaporation loss to an average of 1.32 per cent. of the volume, compared to 14.68 per cent. from similar small tanks having plain roofs. The gravity loss was reduced from an average of 4.8 degrees Baume to an average of 0.13 degrees.

Refineries were also experimenting by burying the steel tanks in the ground. But soil corrosion resulted in their rapid deterioration with consequent many small leaks which were difficult to detect and expensive to repair. Tile was also used to enclose tanks and was said to reduce evaporation losses from 4 to 6 per cent. Small reinforced concrete tanks holding about 1500 barrels each were also buried in the ground and prevented some evaporation losses.

A more thorough study of evaporation losses was made by the United States Bureau of Mines for the year 1919. The report which was published in 1922 stated that in one stage only of handling crude oil, that is, during the first few days that the crude oil was stored on the leases, the volume of gasoline which evaporated in the Mid-Continent field alone, was equal to 3.33 per cent. of the entire gasoline production of the United States and that it was over one-third of the entire natural or casinghead gasoline produced.

It was found that some of the large companies had tried to determine their evaporation losses from crude oil and had reduced them to some extent and that the progressive refining companies had done much to prevent the evaporation of gasoline. The oil companies were anxious to and did cooperate with the Bureau of Mines, not only in the determination of the evaporation losses but in finding means for their prevention.

Evaporation losses not only result in a lesser volume of crude, but as the lighter or gasoline fractions are the principal ones to vaporize, they cause a decrease in the gravity of the oil and the amount of gasoline which can be extracted from it. Naturally, the decrease in the gravity depends on the nature of the crude. It is small for heavy oil compared to that for the lighter crudes.

Important evaporation losses occurred from the flow tanks, in the filling of the lease tanks, from the oil stored on the leases, in the pipe line gathering tanks, during transportation and at tank farms and refineries. Over 50 per cent. of the loss took place before the oil reached the pipe lines.

The greatest evaporation loss per unit of time was found to come from the overhead filling of receiving tanks on the producing leases. It amounted to from 1 to 2 per cent. of the volume within a few hours. A substantial saving was being made on some oil leases through filling these tanks from the bottom as the oil was not then exposed to the air except at the top of the liquid. Large losses occurred when the small tanks were not protected from the sun's rays or from the free circulation of air.

The least evaporation loss per unit of time took place when the oil was stored in the large 35,000 and 55,000 barrel tanks at the tank farms and refineries. Losses there ranged between 0.7 and 3.0 per cent. a year, depending on the gravity of the oil and the length of time that it had been in storage. If stored long enough, there would be no further loss.

Conclusions were summarized for the Mid-Continent field as shown in the next table.

The crude production of the Mid-Continent field in 1919 was reported at 193,147,000 barrels. As 3.5 per cent. of the evaporation losses had taken place before the oil was measured, the actual production was around 200,152,000 barrels. So that 7,005,000 barrels of crude were lost before it reached the pipe lines. Then followed the estimated 2.7 per cent. loss which meant 5,215,000 barrels, making the total estimated loss 12,220,000 barrels.

Considered as crude oil of an average value of $2.16 a barrel at the wells, the figures estimated by the U. S. Geological Survey for Mid-Continent oil for 1919 in its 1922 report, the loss through evaporation in this one field alone was $26,495,200. But the evaporated fractions of the oil were practically all gasoline, which at the then average price of around 22 cents a gallon, would have had a value of $112,912,800.

As the Mid-Continent field produced only 51.0 per cent. of the total production of the United States, the total losses might be considered approximately twice that amount. But that would be an overestimate, as the evaporation losses from the California and Gulf Coast fields would not have been nearly as large as from the high gravity Mid-Continent one.

In any event, the losses were enormous.

The general conclusions drawn by the Bureau of Mines were:

Evaporation during storage and handling causes one of the largest losses of crude petroleum between the well and the refinery;

From two-thirds to four-fifths of the evaporation loss may be eliminated by protecting oil from free contact with air. This protection will pay for itself in a short time;

The percentage of the original *value* lost by evaporation is two or three times the percentage of the oringal *volume* lost, because the fraction that escapes from the crude oil is the best gasoline and its value per unit is two or three times that of crude;

The maximum prevention of evaporation involves keeping the mixture of air and vapor above the oil at rest and as near a constant temperature, whether high or low, as possible. For example, if the mixture of air and vapor above the oil does not move, very little more evaporation will take place at 115 degrees Fahrenheit than at 32 degrees because the mixture will soon become saturated and then evaporation will cease;

The major part of the evaporation loss, when the most valuable products escape, takes place on the lease when the oil is still fresh;

Oil is liable to evaporation loss, even after it leaves the lease;

TABLE 40

Apportionment of the Evaporation Losses Sustained by Mid-Continent Crude from the Well to the Refinery

Place of Loss	—Per cent. of Volume of Crude Evaporated— Summer	Autumn and Spring	Winter	Average
Flow tank	1.2%	1.0%	0.8%	1.0%
Filling lease tanks	1.2	1.0	.8	1.0
Lease storage	1.8	1.4	1.2	1.5
Pipe line gathering tanks	1.3	.9	.8	1.0
During transportation	1.2	.9	.8	1.0
Tank farms	.9	.7	.6	.7
Total	7.6	5.9	5.0	6.2

Dehydration in open steaming plants is the most flagrant example of the neglect to prevent evaporation losses. Such plants should be made air tight with valves for regulating pressures;

Overshot connections should never be used for filling a tank;

Even in winter, when atmospheric temperatures are low, oil in exposed lease tanks will lose more than one-half of what it would lose during similar storage in summer;

Oil at the surface of 55,000 barrel tanks, where evaporation takes place, is subjected during a part of the day to temperatures much higher than the average temperature of all the oil in the tank. In summer, these surface temperatures rise above 100 degrees Fahrenheit. Evidently in such storage the loss by evaporation must be large;

For one who handles crude, evaporation is almost as insistent as it is for the refiner who handles the gasoline obtained from the crude, because gasoline in the natural crude will evaporate approximately one-half as rapidly as it will after being distilled and stored as pure gasoline;

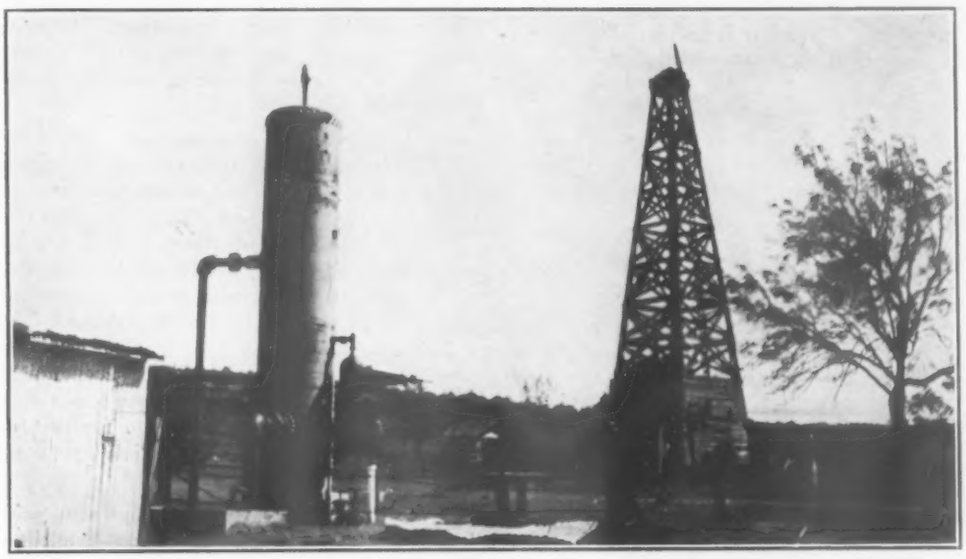
The more volatile the gasoline contained in a crude, the more nearly will the rate of evaporation of the crude approach the rate of evaporation of the gasoline (stored in the pure state) distilled from the crude, evaporating conditions of both being the same;

The increasing demand for crude oil and gasoline is making this problem more and more insistent. In future, it may be considered as illegal to waste oil brought to the surface, as it is now considered illegal to waste it underground;

So many conditions vary the rate of evaporation that to cover them all would require an almost unlimited amount of work. Each operator of a lease or pipe line should attack and solve his own problems.

There were no particular engineering problems involved in preventing evapora-

"If it's worth drilling for, it's worth saving"



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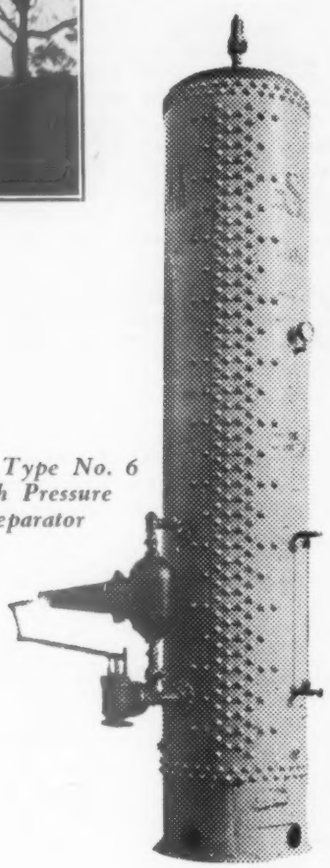

Smith Type No. 6 High Pressure Separator

The Type No. 6 Smith Separator shown above is operating efficiently with a working pressure of 500 pounds, on a lease in Eastland County, Texas.

The high pressure was not the only feature that had to be successfully handled in taking care of this production, but the gas coming from this well was so wet that it was impossible to use it for domestic consumption. THE SOLUTION WAS THIS: The operators knew, from past experience, that they could depend upon a Smith Type 6 Separator to do the work. In a twenty-four hour period this separator is making 1000 gallons of gasoline, and at the same time it is putting into the Lone Star Line, 1,500,000 cubic feet of dry gas. This particular type of Separator is especially adaptable for the purpose of scrubbing gas lines, extracting the moisture, leaving the gas clean and dry for various purposes.

It is, therefore, obvious that a Smith Separator is a good DIVIDEND-PAYER in more ways than one. Hundreds of other Operators have increased the value of their production, and safe-guarded their leases and workmen from fire and injury, with SMITH SEPARATOR INSTALLATIONS. You, too, can secure this profit-earning protection, and Smith Separator Representatives will gladly explain how it can be done. Write for Complete Catalog.

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tion losses to a great extent. The principal ones were the amount of capital required to install the proper tanks, gas collecting systems and other apparatus for the prevention of the losses and whether or not the savings effected would justify the expenditure. This was no problem for the large progressive companies, as they had already done much to prevent evaporation and they have always been ready to spend millions to prevent waste of this natural resource. But to the small producers, and there were many thousands of them, the financial problem was the main one to overcome. The suggestions made by the Bureau of Mines were in accord with much of the work which had been done by the large progressive companies.

The Bureau of Mines advised that the most practicable way of reducing evaporation loss was to make the tops of all tanks gas tight and to keep them under a slight pressure, regulated by automatic valves; to do away with all overshot connections, and to connect all tanks with the casinghead or natural gasoline plant, if one were already installed. Practically 100 per cent. of the evaporation loss could be saved if such connection were made and if the necessary gasoline plants were built.

Studies of the effect of different colored paints on tanks were afterwards made with the result shown in the next tables.

TABLE 41

Results of Evaporation Tests on a 55,000-Barrel Crude Oil Storage Tank

Color of Tank	Evaporation Loss in One Year Barrels	Per Cent.	Gravity Loss, Degree Baume
Black	649	1.24%	0.6
Red	609	1.14	0.5
Gray	547	0.99	0.3
Aluminum	447	0.83	0.2

TABLE 42

Rise in Temperature and Percentage Loss by Volatilization in Small Tanks Filled Two-Thirds With Naphtha and Exposed to the Sun for Two Hours

Color of Tank	Temperature of Naphtha, Degrees F.	Percentage of Loss
Black	111	9%
Bright red	109	8
Dark red	108	8
Dark green	108	8
Battleship gray	106	6
Tan	104	5
Red primer, white top coat	102	5
Cream or pale blue	102	5
White	100	4

These and other tests show the economic value of light colors over dark ones for the painting of tanks.

The most successful way to eliminate practically all evaporation losses is by the installation of gas collecting systems through which all tanks are connected with natural gasoline plants. All vapors are thereby conducted to these plants and the gasoline recovered from them. These systems have been installed by the progressive companies.

But there are some fields in which there are not sufficient gas and waste vapors to warrant the erection of a natural gasoline plant, although such producing fields are becoming fewer and fewer as time goes on.

In all fields, vapor tight tanks have proved so effective in reducing evaporation losses that nearly all oil operators are using them. The filling loss of lease tanks so equipped have been reduced from the former figures of around 1.0 per cent. of the volume of the crude, to an average of between 0.1 and 0.2 per cent., a reduction of from 80 to 90 per cent. of these heretofore important losses.

What are known as breathing losses occur from some vapor tight tanks. They are caused by atmospheric variations. During the day when the temperature rises, the gasoline saturated vapors in the tanks expand and are vented out into the air through control valves. At night, owing to the decrease in the temperature, the vapors contract and fresh air is sucked into the tanks. This air becomes saturated with the gasoline vapors. It is forced out the next day when the vapors expand and these gasoline fractions are emitted into the air.

On some leases collapsible breather bags have been installed which fill up with the vapors from the tanks during the day and return them in the night time. In this way no fresh air is admitted into the tanks and there are no evaporation losses.

Breathing losses are also reduced in three other ways: operating the tanks under pressure, using light colored paints on the tanks and by the erection of wooden houses to protect the tanks from the rays of the sun and from the wind.

The breathing loss from a vapor tight tank that is filled and emptied each day is almost negligible, even when added to the average filling loss of from 0.1 to 0.2 per cent. These two losses combined in such tanks are not sufficient to affect the value or gravity of the crude materially. But when the production conditions are such that it takes several days to fill the lease tanks, these combined losses are such as to warrant the use of means for their prevention.

If sufficient pressure is used, the vapors will be held in the tank. The amount of pressure which can now be used is many times that formerly employed. Bolted tanks operate under pressures up to 18 to 20 ounces and many producers have installed riveted or welded tanks which are operated under pressures up to five pounds. Local conditions, however, sometimes limit the amount of pressure which can be so used on lease storage and flow tanks.

Tests have demonstrated that a vapor tight tank equipped with a pressure relief valve opening at only two ounces of pressure, will show a loss from filling and breathing of only from 1.40 to 2.80 per cent. of volume over a period of 36 days according to the season, and a gravity loss of from 0.55 to 1.10 degrees A. P. I. Thirty-six days are several times the number during which the crude oil is held on the leases and these losses show a very substantial reduction for the former ones of from 4.7 to 9.8 per cent. for the same period.

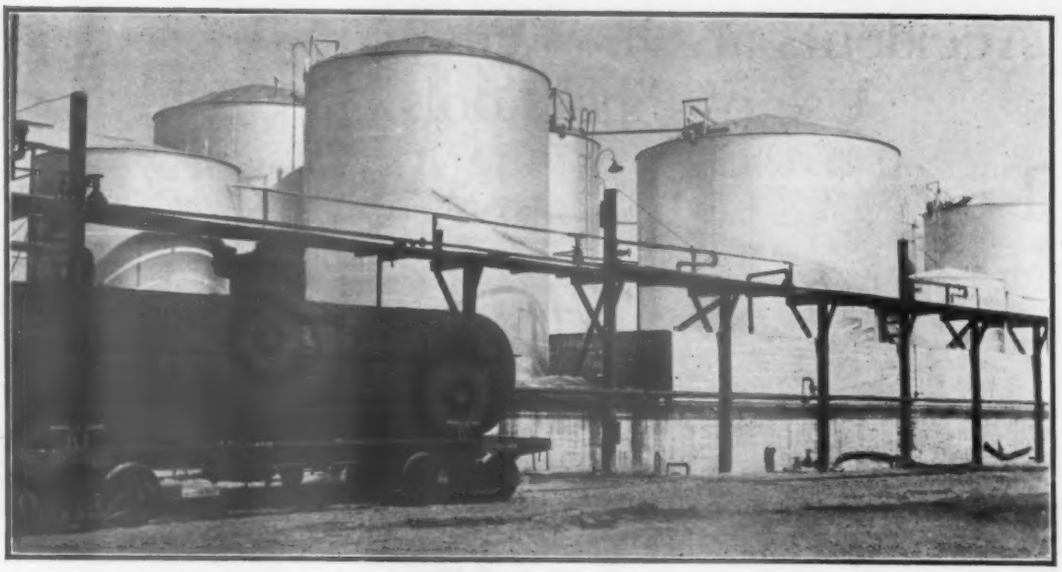
Where such tanks are operated under a pressure of only 16 ounces, the loss in volume for this same length of time varied from 0.59 to 1.18 per cent. while the gravity loss was from 0.3 to 0.6 degree. This increased pressure saves approximately 60 per cent of the evaporation losses which occur under 2-ounce pressures. As the pressure is increased in tanks which will stand up under them, the losses are further reduced.

Other tests show that tanks covered with aluminum paint reduce the average variation in the temperature of the vapor by approximately 13 degrees F. from that of red painted tanks and that properly housed tanks give a further reduction of 9 degrees. The latter installation must be very carefully made as the wooden cover may act as a flue and increase the circulation of air in the vapor space above the oil, where the tanks are not kept vapor tight. Fire risks are also augmented in wood housing when the boards become saturated with oil.

Very good results are being obtained in the reduction of evaporation from vapor tight tanks which are not connected with gasoline recovery systems, through the combination of suitable pressure and light colored paint. Other improvements in tanks have been made by the installation of floating and breather roofs which are reported to give satisfactory results.

The effect of the conservation of gasoline through the large decrease in evaporation losses is reflected in the increasing percentage of straight run gasoline recovered at the refineries during the past years shown in Table 19 and by the much greater production of natural gasoline which will hereafter be discussed. The decrease in these losses has resulted in an important conservation of our natural resource, petroleum. Credit must be given to oil operators and the important co-operation which has taken place between them and the federal government.

California Petroleum Corporation Gasoline Tanks Coated with Bitulumin



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Say you saw it in The OIL WEEKLY

Accidents at Oil Wells Due to Use of Pipe Tools

THE fact that pipe tools cause many serious accidents in the petroleum industry is stressed by the United States Bureau of Mines, Department of Commerce, following a study of the subject recently conducted in the State of Oklahoma. In general, pipe tools do not suggest the possibility of causing injuries that may cripple a man for life, states H. C. Fowler, petroleum engineer, in a report just made public. To the casual observer, many parts of the machinery at drilling and producing wells apparently present hazards that are far more obvious, but in a review of the petroleum accident records of Oklahoma during a recent year it was found that "pipe tools, including tongs and wrenches, circle jacks, and casing poles, caused more accidents than any other equipment at the wells." Of 720 accidents due to machinery and equipment at drilling and producing wells, 142 were caused by such tools.

In the aggregate, these accidents caused loss of work amounting to 4888 days, or 13.4 years, in Oklahoma alone. No record is available for industrial accidents causing death in Oklahoma, because the present statutes take death cases out of the jurisdiction of the State industrial commission; therefore the data as given do not tell the complete story, for undoubtedly there were fatal accidents during the year caused by pipe tools.

On the derrick floor a pipe toll is taken to mean a device used to aid in screwing and unscrewing sections of tubular goods or other pieces of drilling and pumping equipment that go together with threads. More colloquial phraseology would state that a pipe tool helps a man to "make and break" joints and strings of drill pipe, casing, tubing, sucker rods, and drilling and fishing tools.

The hands are continually exposed to hazard when using tongs and wrenches, and every driller, floor man, tool dresser, and roustabout must take the utmost care in handling these tools. Tongs and wrenches caused 103 of the pipe-tool accidents in the Oklahoma petroleum industry during the period studied and were responsible for 81.5 per cent. of the lost time. Twelve of these accidents were permanent partial-disability cases causing the loss or permanent loss of use of a thumb or one or more fingers; in other words, these accidents caused 12 men to become less efficient for the remainder of their lives than they otherwise would have been.

The hazard of "putting the back twist in drilling lines" is a special phase of the pipe-tool accident problem. The hazards of "backtwisting" may be comprehended from the fact that 19 tool dressers at Oklahoma wells lost an aggregate of 384 days during one year from injuries suffered in performing this necessary operation on the derrick floor. These 19 accidents were in addition to the 142 caused by other pipe tools.

Although swivel wrenches did not cause a large number of accidents, the injuries received in the operation of these pipe tools are usually severe. Such tools should be handled more carefully than they usually are. Accidents in the use of circle jacks, casing poles, and under-reamers, were also studied by the bureau.

Pipe tools may well be called the fingers of the drilling and producing departments of the petroleum industry, declares Mr. Fowler. Without them every operation of screwing together or unscrewing the several parts of tubular goods or equipment of circular cross-section would be as handicapped as the movements of a man with both hands removed at the wrists.

Because so much depends upon the smooth mechanical functioning and the correct methods of manipulation of these devices, it would repay every oil-producing company to give considerable thought to these tools.

Careful investigation would reveal that almost every pipe-tool accident follows use of a worn or defective tool, employment of an incorrect tool for a prescribed purpose, or incorrect handling of a tool by an inexperienced workman. Sometimes a workman disregards known physi-

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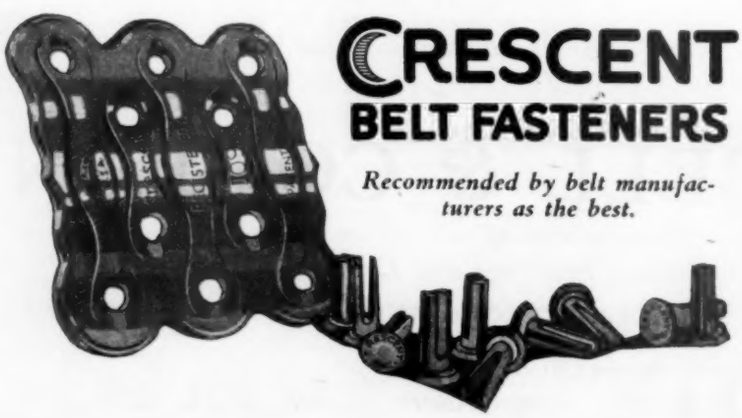

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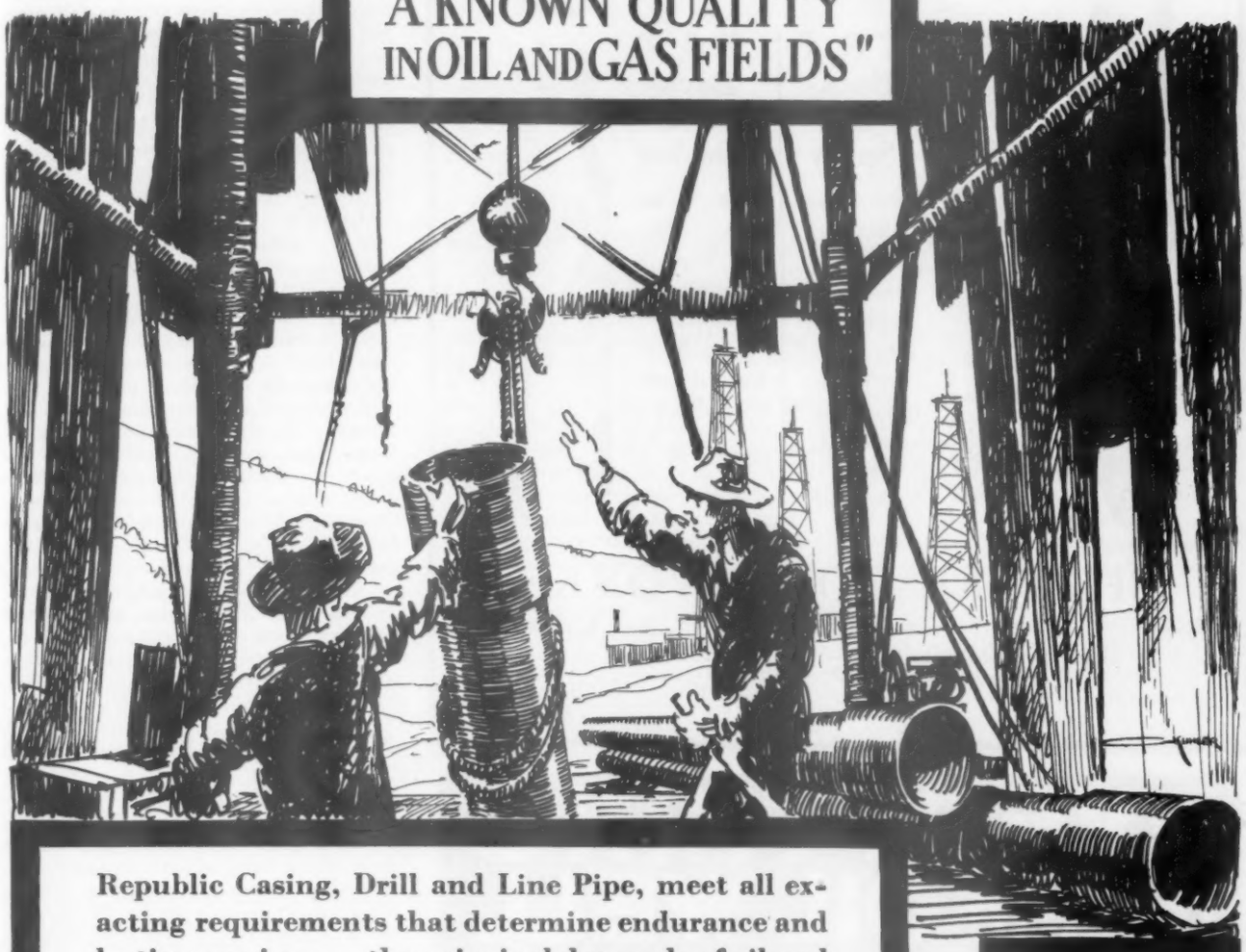

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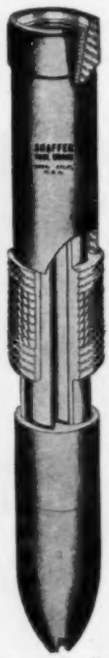

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T & T Back-Off Spear

This Spear has only 2 Slips. Practically Impossible to lose in hole. Simple—compact easily backed off.

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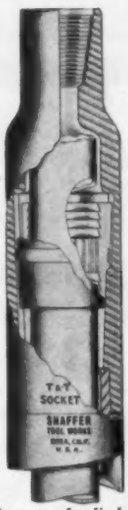

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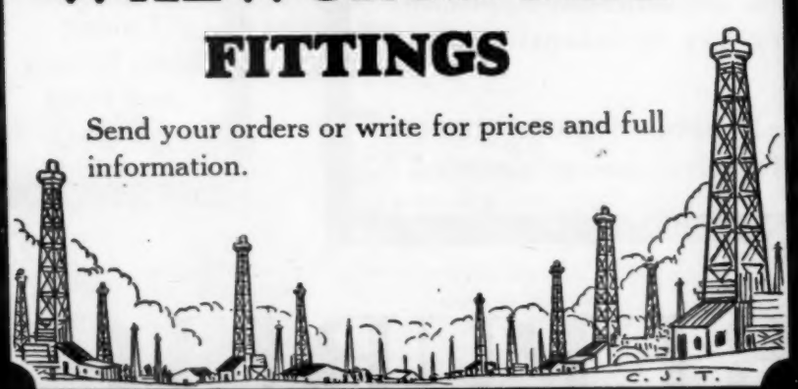

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cal laws and the penalties of disobedience to them.

A systematic and frequent inspection of pipe tools would repay every oil company. The replacing of parts—or, if need be, the purchase of new tools—is less expensive than to have workmen off the active pay roll through injuries brought about by worn tools. In addition, every man should inspect each tool carefully before using it. Inherent flaws or defects may develop when the tool is subjected to stresses, and continued use will lead to its failure at a critical moment. Constant vigilance will help to prevent many pipe-tool injuries.

Makeshifts are always dangerous. Substituting a tool that is near at hand for one designed for a specific duty does not accord with good oil field practice.

Proficiency is gained through experience, but helpful instruction is a great aid toward the mastery of a difficult task. Every oil company should school its employes in the fundamentals of mechanical laws and in the proper use of tools and machinery. Many hard knocks have been saved new employes by companies that show them how to do their work correctly from the start. These initial directions should be supplemented with periods of instruction conducted by a competent person, who, through his own training and experience clarifies the fundamental principles of physical laws as applied to machinery equipment.

Record Nitro Charge Used In West Virginia Well

Charleston, West Virginia.—In shooting their gas well recently on the J. E. Wick farm, about two miles west of Scary, Putnam County, the United Fuel Gas Company and the Sowders Oil & Gas Company established an unusual record, using many times more than the usual amount of nitroglycerine. Whereas it is customary in such cases to use from 20 to 40 quarts of the explosive, the amount used in this particular instance was 1010 quarts, or 25 to 50 times the ordinary amount.

Total weight of the nitro-glycerine used was 2272 pounds, being in 52 cartridges, each containing 20 quarts. Each cartridge was about 15 feet long and three inches in diameter. Since the depth of the hole was around 4300 feet, the top of the last of the 52 cartridges lowered into the well was about 3320 feet below the surface.

Depth of the well was about twice as great as other wells of the district, the purpose of the deep test having been to determine the producing possibilities of a black and brown shale in which gas had been found in another test well in the vicinity. After the shooting the well was estimated to be making 500,000 cubic feet of gas a day.

The noise of the explosion could not be heard on the surface when the nitroglycerine was set off, but a moment later water and the metal from cartridges were hurled 500 feet into the air.

Texas Panhandle Crude Stocks Reduced During April

AMARILLO, Texas. — Crude stocks in the Texas Panhandle district were reduced 430,330 barrels during April, or at an average rate of 14,344 barrels daily. Total stocks at the close of April were estimated at 17,905,530 barrels, with approximately 6,338,470 barrels of steel storage facilities idle. Declining production in the district has resulted in a steady withdrawal from stocks since February, and the current output is considerably below pipe line outlets to distant markets.

Marland Production Company's withdrawals from storage accounted for 271,820 barrels of the reduction reported during April, as this oil is being used to fulfill a contract with Humble Oil & Refining Company. Marland made contract late in December, 1926, to deliver about 15,000 barrels of Texas Panhandle crude daily to Humble for a period of three years at the market price, plus a gathering charge to be received by Marland Pipe Line Company, and while production is below the contracted amount the deficit must be made up from storage. Marland has pulled on its Panhandle stocks more than one-half million barrels during the first four months of this year, and at the close of April had 1,294,970 barrels of oil on hand.

The crude market situation in the Texas Panhandle is in a firm position, with considerable support coming from small premiums paid for spot oil by local skimming plants. Although pipe line facilities are sufficient to take care of all production, a number of producers and independent crude buyers continue to use tank cars in moving oil to distant refining centers, and during April approximately 1285 cars of crude were loaded. Sinclair Crude Oil Purchasing Company, which is a large buyer of the high gravity crudes found in the Pampa district, Gray County, loaded about 775 cars for consignment to the Sinclair Refining Company's plant at Houston. Bell Oil & Gas Company, independent buyer, shipped about 155 cars to distant refining concerns, including a number of cars to Canadian plants. Skelly Oil Company dispatched more than 100 cars to its El Dorado, Arkansas, refinery during April, and stored the remainder of its production. Skelly has started knocking down some of its idle field storage in Hutchinson County for removal to Winkler County, West Texas district, where a number of prolific leases are being developed.

Natural gasoline production in the Texas Panhandle district during April amounted to 8,978,600 gallons, or approximately two and three-quarter million gallons under the mark established in March. Declining gas supply in a few areas, and the arrival of warmer weather accounted for the drop in output of this product, but considerable natural gas is being produced in the district without being put through plants.

The Texas Company is completing work this week on connecting all of its oil leases in Gray and Carson Counties with a gathering system, which feeds into a six-inch line extending from Kingsmill tank farm to Panhandle. A connection is made at Panhandle with the Magnolia-Gulf 10-inch trunk line, and the latter will common carrier the oil to Ranger for about 25 cents per barrel. The Texas Pipe Line Company will receive the oil at Ranger, thus giving a direct pipe line outlet from the Panhandle.

Crude stocks and total steel storage facilities in the Texas Panhandle district at the close of April, 1928, are listed below by companies:

Company—	Crude stocks in barrels	Total storage facilities in barrels
Phillips Petroleum Company	3,529,345	4,215,000
Magnolia Petroleum Company	3,513,695	4,475,000
Gulf Production Company	3,076,470	3,895,000
Prairie Oil & Gas Company	2,639,525	2,945,000
Marland Pipe Line Company	1,294,970	2,375,000
Skelly Oil Company	923,410	1,100,000
Humble Oil & Refining Company	808,910	1,375,000
Plains Pipe Line Company	558,025	620,000
Bell Oil & Gas Company	214,950	275,000
Roxana Petroleum Corporation	212,720	375,000
McMillan Pet. Products Co.	176,215	220,000
J. J. Perkins et al	158,685	160,000
Japhet Production Co.	110,825	110,000
Empire Gas & Fuel Co.	107,350	275,000
Champlin Refining Co.	104,995	115,000
Devonian Oil Company	102,695	110,000
Mid-West Exploration Co.	72,065	110,000
Atlantic Oil Producing Co.	54,950	55,000
Coble-Whittenburg Oil Co.	53,995	55,000
Sunny Jim Oil Company	50,495	55,000
Cockrell-McIlroy et al	42,300	345,000
Dixon Creek Oil Company	39,700	215,000
American Refining Co.	30,095	110,000
The Texas Company	24,490	185,000
Sinclair Crude Oil Pur. Co.	3,625	80,000
Toronto Pipe Line Company	1,030	20,000
Pantex Oil Company	.....	220,000
Derby Oil Company	.....	65,000
Goldelline Oil Corp.	.....	55,000
Sunny Jim Oil Company	.....	55,000
McIlroy-Herring Oil Co.	.....	20,000
Totals	17,905,530	24,285,000
Totals at close March, 1928	18,335,860	24,340,000
Total decrease during April	430,330	55,000

Much Doing on This Small California Lease

Houston—An example of the assembling of much oil field property on little space is related by H. E. Smith, 111 South Milton Avenue, Whittier, California, formerly of the Rio Bravo Oil Company at Houston. In a letter to *The* OIL WEEKLY Mr. Smith said:

"I happened on a lease here a few days ago, which recalled old memories of the Spindle Top boom; that is, installing rigs, tanks, sump holes and other things on small pieces of property.

"This particular piece is 120 feet by 120 feet, being a lease of the Doyle Clune Oil Company at Signal Hill-Long Beach.

"Following is what is located on the 120x120 foot lot:

"One well flowing 3400 barrels per day.
"One well flowing 2100 barrels per day.
"One complete standard rig at each well.
"Three 70-h.p. boilers, bricked-in foundations.
"One 70-h.p. firebox boiler.
"Two 300-cubic-foot air compressors.
"Four 6x4x6 pumps for oil treaters.
"One 3500-barrel tank oil.
"Two 1500-barrel tanks oil.
"Three 1000-barrel tanks oil.
"One 200-barrel tank oil.
"One 200-barrel tank water.
"Two 12x6x12 slush pumps set up to pump oil and mud; these do not belong to rotary rig.
"Two 6x4x6 water pumps.
"Two 12x6x24 line pumps.
"Four 500-barrel dehydrater tanks.
"Two 12x5x12 water pumps.
"Two sump holes about 12 feet square.
"One casing rack with 6000 feet four-inch drill pipe and 6300 feet of three-inch drill pipe on same.
"Two Lorraine Gas Separators.
"One switch house 12 feet square.
"Two 60-h.p. oil engines to drive compressors.
"Two toilets, outdoor type.
"About 10 truck loads of miscellaneous junk.
"Enough room left to park a truck and trailer."

"If you have anything to beat this in Texas, let me know," he added.

Hard to Get to and Hard When You Get There

WILDCATTERS who think they have tough formations with which to contend should try some Navajo sandstone out on their bits. America's rankest, and probably most interesting wildcat test, Phillips Petroleum Company and Delmar Oil Company's Schick 1, in Wayne County, Utah, had made 70 feet of hole at latest reports in May, after spudding in an outcrop of this formation April 19. Fractured crevices in this sandstone were considered the outstanding problem found by the crew on this test, which is being watched from every part of the United States.

Phillips and Delmar Oil Company, the latter being the Indian Territory Illuminating Oil Company outside of Oklahoma, have a solid block of approximately 100,000 acres under lease around the location, the center of the northeast of section 16-27-16. They are going to 4500 feet unless pay is encountered at a higher horizon.

Phillips-Delmar's Schick 1, drilling in Wayne County, Utah

Here is what they had to face in starting a road to the Wayne County wildcat

Schick 1 is 58 miles from the nearest town, Green River, Utah, and that point is the nearest railroad, the Denver & Rio Grande Western. Fuel and equipment was hauled by truck from Green River to the location at a cost of $1.50 per hundred pounds, and this transportation was possible only after the operators had spent four months and approximately $30,000 in road construction. The major portion of this expenditure was made on a winding road four miles in length up Barrier Creek Canyon, near the location. After traveling this four miles, only three-quarters of one mile is actually made. Barrier Creek Canyon, through which this road traverses, rises to steep walls as high as 850 feet, according to C. O. Rison, general superintendent for the I. T. I. O. Company, Bartlesville, who returned May 10 from the Utah operation. Mr. Rison, who with Joe Vance, superintendent, and L. E. Fitzjarreld, assistant superintendent for Phillips Petroleum Company, spent several weeks at the location getting operations started, took the accompanying photographs. He describes the surrounding country as being a waste of desert land, with no habitation within considerable distance. There is no fresh water between the location and Green River, 58 miles northwest, it all containing considerable alkali. Fresh water for drilling was procured by drilling a shallow hole in the bed of a dry creek in the canyon. This creek has long since ceased to flow except for possible sub-surface seepage.

The Schick 1 hole is being drilled with cable tools run by a Climax drilling engine with gasoline for fuel. The gasoline is hauled in barrels on truck from Green River. A Slater turnbuckle derrick is being used.

The nearest wildcat test to the Phillips-Delmar operation is 25 miles west, where The Texas Company has a hole going down. Traveling between these two operations, however, is not possible without going in a round-about way, as by Green River, or other out-of-the-way points.

Schick 1 is being drilled from geological findings of the joint operators. After an extended period of geologizing in the vicinity, the Barrier Creek anticline was outlined as a structure.

Joe Vance, Phillips, superintendent, and C. O. Rison, I. T. I. O. superintendent, taking a look into Barrier Creek Canyon

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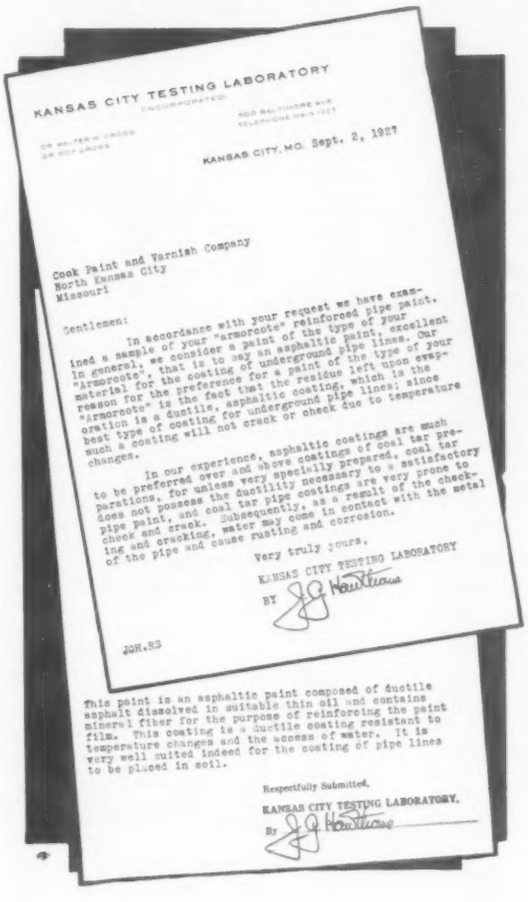

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Missouri

Gentlemen:

In accordance with your request we have examined a sample of your "armorcote" reinforced pipe paint. In general, we consider a paint of the type of your "Armorcote", that is to say an asphaltic paint, excellent material for the coating of underground pipe lines. Our reason for the preference for a paint of the type of your "Armorcote" is the fact that the residue left upon evaporation is a ductile, asphaltic coating, which is the best type of coating for underground pipe lines; since such a coating will not crack or check due to temperature changes.

In our experience, asphaltic coatings are much to be preferred over and above coatings of coal tar preparations, for unless very specially prepared, coal tar does not possess the ductility necessary to a satisfactory pipe paint, and coal tar pipe coatings are very prone to check and crack. Subsequently, as a result of the checking and cracking, water may come in contact with the metal of the pipe and cause rusting and corrosion.

Very truly yours,

KANSAS CITY TESTING LABORATORY

BY J. J. Hawthorne

JJH.RS

This paint is an asphaltic paint composed of ductile asphalt dissolved in suitable thin oil and contains mineral fiber for the purpose of reinforcing the paint film. This coating is a ductile coating resistant to temperature changes and the access of water. It is very well suited indeed for the coating of pipe lines to be placed in soil.

Respectfully Submitted,

KANSAS CITY TESTING LABORATORY.

By J. J. Hawthorne

TWELVE years ago the city of Wellington, Kansas, installed fourteen miles of pipe line for a water supply project. The work was done by the Benham Engineering Company, who painted the eighteen-inch pipe with Armorcote Reinforced Pipe Coating. Says Mr. Webster L. Benham:

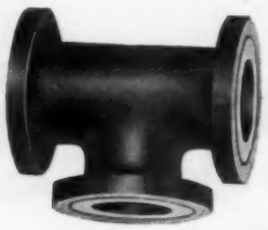
"Investigation of the coating from time to time has revealed that this paint is still in e..cellent condition after twelve years of service, and that there is no deterioration in the pipe line, due to the protection afforded by the paint. The line is approximately fourteen miles in length, and part of it runs through a soil of high alkalinity. This paint has given complete satisfaction, and demonstrated to me that it offers the best protection for steel pipe of any paint which has ever been used on our work. It is our opinion that there is no paint manufactured at the present time which is better suited for the protection of natural gas pipe lines."

Supporting this experience-testimony of Mr. Benham is the analytical report of the Kansas City Testing Laboratories (see letter and report reproduced at left).

We shall be glad to submit samples and quote prices, on request.

Cook Paint & Varnish Co.

Factories: **Kansas City — St. Louis — Fort Worth — Houston — Cincinnati**
Branches in the Principal Cities of the U. S. A.



CAST STEEL TEE FITTING
ONE OF A COMPLETE LINE ALWAYS IN STOCK TOGETHER WITH FORGED STEEL VALVES, FLANGES AND FITTINGS
ACIMET ALL-LEAD VALVES
NEILAN REGULATING DEVICES
UNITED AIR CLEANERS
LABORATORY SUPPLIES
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the SIMPLEST MOST ECONOMICAL MOST RAPID METHOD

Just mix in Tret-O-Lite, and oil and water promptly separate. Let us send our nearest field expert to see you.

WM. S. BARNICKEL & CO.
St. Louis, Mo.
Offices and Plant:
Webster Groves, St. Louis County, Mo.

Magnolia Line Runs Unaffected by Curtailed Production

DALLAS, TEXAS. — Magnolia Pipe Line Company's crude runs from fields in Oklahoma and Kansas have not been affected by declining production in this section of the Mid-Continent, and during April a daily average of 58,452 barrels was maintained. Crude runs from these two States by Magnolia have been exceeding trunk pipe line capacity about 4000 barrels daily for some months, and stocks have been added to each month since September. 1927. Magnolia added 255,526 barrels, or a daily average of 8518 barrels, to stocks in these two States during April, making a total of 8,229,122 barrels on May 1. The addition to stocks in the above two States within the past seven months amounts to 2,166,411 barrels.

Magnolia's crude runs represent oil produced and purchased from other producers by the Magnolia Petroleum Company, and does not include that transported on a common carrier basis, or the oil being stored on contract in the Hendrick field, West Texas district, with Cranfill & Reynolds, Inc. This latter concern has a contract to deliver a maximum of 16,500 barrels daily, if available, to Magnolia until a total of 3,000,000 barrels are stored. With the above exceptions, Magnolia's daily runs from fields in Oklahoma, Kansas, Texas, Louisiana and Arkansas averaged 115,702 barrels during April, as compared to 122,552 barrels in March. This decline of 6850 barrels on daily average was sustained mostly in Texas fields, but was more than offset by the storage contract with Cranfill & Reynolds. However, the enforcement of proration in the endrick field will reduce crude deliveries of the latter interests during May.

Increased demand for gasoline is reflected in Magnolia Petroleum Company's water shipments of refined products from Beaumont terminals to the Atlantic Coast and foreign countries, as total shipments during April reached 54,296,882 gallons, or a gain of 14,639,029 gallons compared to the March water shipments. Tanker movement of fuel oil continues at a low level, and during April 2,913,590 gallons were shipped as compared to 3,892,485 gallons for the previous month. Magnolia's crude movement in tankers to the Atlantic Coast amounted to 844,608 barrels in April.

Total crude runs made by Magnolia Pipe Line Company, exclusive of common carrier business, from fields in Oklahoma, Texas Louisiana, Arkansas and Kansas during March and April, 1928, follows:

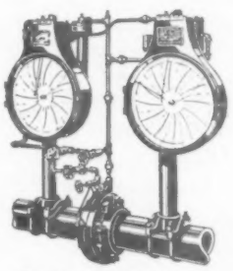
Fields—	March Totals	April Totals
Wewoka-Earlsboro	889,544	834,695
Seminole	254,271	263,088
Healdton	256,325	227,649
Hewitt-Graham	147,583	162,328
Cushing	131,832	127,988
Yale	54,936	51,387
Duncan	46,788	41,961
Augusta (Kansas)	38,548	37,177
Walters-Beaver Creek	6,939	7,195
Burbank	87	84
Totals Oklahoma and Kansas	1,826,853	1,753,552
Crane County	575,011	465,524
Luling	373,964	349,458
Panhandle District	119,749	115,989
Electra	106,808	100,216
Winkler County	111,096	83,583
Burkburnett	76,937	74,771
Lockhart-Lytton Springs	58,191	56,107
Mirando	62,676	57,836
Archer County	37,308	33,808
Mexia-Wortham	33,677	31,296
Chalk-Iatan	34,633	29,177
Desdemona-Comanche	20,095	17,369
Corsicana-Powell	13,884	12,601
Corsicana (Heavy)	10,416	9,067
Ranger-Olden	10,043	10,250
Stephens County	10,317	9,034
Petrolia-Clay County	3,707	3,518
Spindletop-Gulf Coast	2,973	1,289
Thrall-Williamson County	1,311	1,130
Panola County	2,505	986
Glasscock-Howard County	1,241	719
Totals for Texas	1,666,542	1,463,728
Bull Bayou	43,532	42,585
Pine Island	45,260	38,307
Hackberry	54,296	37,754
Cotton Valley	29,233	27,303
Haynesville	2,716	2,186
Totals for Louisiana	175,037	148,135
Smackover	95,582	73,312
El Dorado	33,028	29,096
East El Dorado	2,074	3,237
Totals for Arkansas	130,684	105,645
Totals for five states	3,799,116	3,471,060

Bartlesville, Okla.—Empire Pipe Line Company's total receipts for March aggregated 811,148 barrels, a daily average of 26, 166 barrels. Deliveries for that month totaled 821,539 barrels. The company's report for March shows stocks on hand March 31 totaled 4,251,758 barrels.

A man who had not been very good during his earthly life died and went below. As soon as he got to the nether regions he began to give orders for changing the position of the furnaces, and commenced bossing the imps around. One of them reported to Satan how the newcomer was acting. "Say," said Satan to him, "you act as though you owned the place." "Sure," said the man. "My wife gave it to me while I was on earth."

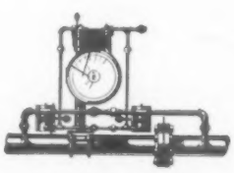
There is a Particular Meter and a Particular Hook-up for all Measuring Jobs

Using the Metric orifice

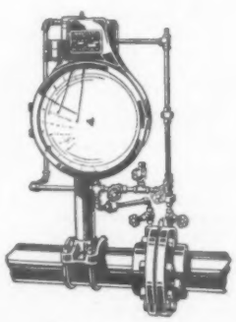


Combined Installation for Measuring Variable Rates of Flow

Installation for Measuring Water or Light Oils—2½ and 8 Pipe Diameter Connections



Heavy Oil Measuring Installation



Installation for Gas (Flange Connections)

METRIC orifice Meters are used for a greater variety of measuring duties than perhaps any other two or three types of meters in the production and initial distributing stages of gas and oil.

This meter is in the ascendency over all fields at home and abroad. It is the most used of all field meters of today because it offers the widest range of utility in its capacity for accurate measurement.

It's general simplicity wins new friends and new jobs constantly. The standard hook-ups shown here do not begin to represent the numerous types of installations for which this meter is being adapted. Orifice meter users are discovering and making ingenious hook-ups both in usual and unusual services, in regular and out-of-the-ordinary places, for new and strange jobs, until the manners and methods of its adaptations seem almost unlimited.

However, the certain basic rules to be followed in any installation of an orifice meter should not be violated. Only if correctly set can the meter render the satisfactory service of which it is capable.

A study of orifice meter measuring possibilities in your special work may reveal new avenues for accuracy and economy. We'll be glad to help, suggest, or advise, about installations, methods and service features.

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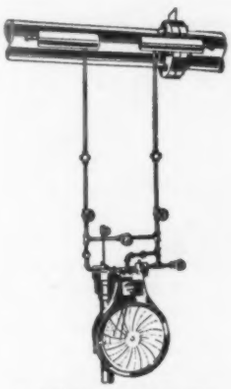
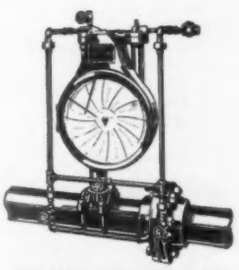
Refinery Gas Meter for Low Differentials



Installation for Measuring Steam



Installation for Measuring Water or Light Oils (Flange Connections)

Say you saw it in The OIL WEEKLY

Texas Quarterly Production Report First Quarter, 1928

Leading Companies in Texas, First Quarter, 1928

	First Quarter 1928	Fourth Quarter 1927	Third Quarter 1927	Second Quarter 1927	First Quarter 1927
Gulf Production Company	6,585,359	5,849,323	5,593,842	6,195,776	5,333,581
Humble Oil and Refining Company	3,895,649	2,963,199	2,815,955	3,017,439	2,596,456
Magnolia Petroleum Company	3,091,216	3,125,152	2,843,208	2,926,145	2,960,421
The Texas Company	2,957,020	2,814,945	2,804,057	3,048,653	3,022,818
Roxana Petroleum Corporation	2,818,691	1,122,990	902,342	.....	.....
Yount-Lee Oil Company	2,754,357	3,363,020	3,776,083	3,411,161	4,169,962
Phillips Petroleum Company	1,884,085	2,192,109	2,660,000	2,962,760	3,189,861
Atlantic Oil Producing Company	1,866,747	1,956,282	1,581,321	.....	.....
Landreth Production Corporation	1,721,002	1,550,958	.....	.....	.....
Prairie Oil and Gas Company	1,677,068	1,779,957	1,273,734	1,510,666	1,629,326
Big Lake Oil Company	1,428,501	1,517,868	1,656,053	1,702,783	2,018,382
Southern Crude Oil Purchasing Company	1,371,203	847,050	.....	.....	.....
Simms Oil Company	1,194,676	1,338,521	1,169,631	935,314	.....
Republic Production Company	1,150,583	.....	.....	.....	.....
Independent Oil and Gas Company	1,118,765	.....	.....	.....	.....
Pure Oil Company	1,107,438	862,194	956,059	925,217	.....

Total, first quarter, 1928	56,746,220
Total, fourth quarter, 1927	56,842,468
Total, third quarter, 1927	51,695,154
Total, second quarter, 1927	50,864,154
Total, first quarter, 1927	51,084,194

Gross Receipts Tax Reports Filed on Crude Oil Production for the Quarter Ending, March 31, 1928.

Name, Address—	Barrels
Arkansas Fuel Oil Co., Shreveport, La.	7,271
Antelope Creek Oil & Gas Co., Amarillo	8,564
American Well & Prospecting Co., Corsicana	43,731
Ancell, Geo. B. (Dec., 1926, to 12-31-27), Electra	13,501
A. & P. Production Co., Houston	27,688
Andrews, W. R., et al, Putnam	1,498
Amicable Life Ins. Co., Waco	248
Ada Belle Oil Co., Batson	23,254
Allday Oil Corp., Wichita Falls	5,330
Atlantic Oil Producing Co. (12-31-27), Dallas	7,038
Atlantic Keystone Petroleum Co., New York, N. Y.	1,438
Abraham, Earl, Bridgetown	984
Atlantic Oil Producing Co., Dallas	1,866,747
Anchor Oil Co., Dallas	1,278
Ashe Syndicate (The), Ft. Worth	1,153
Amarillo Oil Co., Amarillo	1,674
Abercrombie, J. C. Co., Houston	71,062
Walter M. Adams, Wichita Falls	602
Aarco Oil & Gas Co., Baltimore, Md.	9,161
Abbott, R. W., Beaumont	2,627
Ancell, Geo. B., Sr., Electra	1,454
Ascot Co. (The), Wichita Falls	7,560
Acorn Oil Co., Beaumont	8,665
Alamosa Oil Co., Amarillo	51,241
Alamo Oil Co., Brownwood	514
Alonso, Jr., Producers, Laredo (d)	1,747
Apple-Brandeberry Oil Co. et al., Wichita Falls	12,114
Albany Oil Co. and Hope Oil & Gas Co., Breckenridge	2,548
Arco Oil Co., Wichita Falls	18,770
Atlas Oil Corp., Humble	3,222
Amerda Petroleum Corp., Tulsa, Okla.	181,079
Andrews Petroleum Corp., New York, N. Y.	5,225
Artex Oil Co., Wichita Falls	2,273
Associated Oil Co., Tulsa, Okla.	19,964
Ailes, J. W., Wichita Falls	731
Ardcona Oil Corp., Ardmore, Okla.	631
Atkinson & Sandefer Oil Corp., Breckenridge	10,620
Aronson, M., Brenham	1,034
Alaska Petroleum Co., Amarillo	2,252
All-American Oil & Gas Co., Okla. City, Okla.	47
Black, W. A., Albany	1,084
Brown, Dr. E. W. estate, Orange	2,550
Barnes, Jere B., Electra	2,400
Biel, Wm. A., Von Ormy	40
Biggs Oil & Gas Co., McKinney	1,235
Brownlee-Pope Oil Co. (4-1 to 12-31-27), Austin	14,396
B-K Oil Co., Inc., Austin	821
Burke Burnett Jr. Oil Co., Ft. Worth	457
Bailey-Damuth Drilling Co. (12-31), Wichita Falls	.....
Bass & Dillard, Wichita Falls	2,093
Bynum, W. W., Rockdale	1,505
Breeding, D., et al, Rising Star	4,768
Bailey, Fannie, Wichita Falls	995
Boller, C. W., Wichita Falls	8,385
Beggs, Geo. (Strip), Ft. Worth	1,994
Black Cat Oil Co., Electra	1,243
Bowman Oil Co., Rockdale	1,538
Blue Bonnett Petroleum Corp., San Antonio	1,129
Basham, C. E. (12-31-27), Wichita Falls	136
Basham, C. E., Wichita Falls	54
Bryant, M. D., San Angelo	2,857
Big 4 Consolidated Oil Co., El Paso	50
Burton McKee Oil Corp., Strawn	382
Britton, Gordon & Wickens, Strawn	518
Baker, J. A. and Mollie B., Breckenridge	7,924
Barbara Oil Co., Oklahoma City, Okla.	5,282
Bartlett, Wm. & Co., Electra	530
Bailey, Carl B., Wichita Falls	6,870
Beaver Oil Corp., Oklahoma City, Okla.	11,804
Brown, Mrs. Carrie L., et al, Orange	23,758
Barnsdall Oil Co., Tulsa, Okla.	43,974
Braden Co. (The), Eastland	2,621
Bevering, A. H., et al, Henrietta	2,012
Big State Oil Corp., Dallas	1,565
Bridwell & Heydrick Oil Co., Wichita Falls	74,285
Borealis Oil Co., Oklahoma City, Okla.	3,387
Black, Pearson & Hudson, Corsicana	4,296
Brownwood Producing & Refg. Co., Brownwood	2,196
Bynum & Palmer, Rockdale	239
Booth Oil Co., Olney	66
Bohner, C. J., Burkburnett	7,206
Bonner, J. H. S., et al, Wichita Falls	7,635
Bexata Oil Co., San Antonio	1,657
Baldwin, F. C., et al, Ft. Worth	1,913
Brazos River Gas Co., Wichita Falls	273
Black Diamond Oil Co., Amarillo	188
Burkburnett Production Oil Trust, Baltimore, Md.	1,010
British-American Oil Producing Co., Wichita Falls	11,912
Babcock, Scheurer & Schlaffke, Electra	122
Bluebonnet Oil Co., Wichita Falls	859
Bashara, M. J. & Sons, Wichita Falls	11,476
Bashara, M. J. & Co., Wichita Falls	3,003
Brinkley Producing & Refg. Co., Pittsburgh, Pa.	620
Burns, L. T., Wichita Falls	83,615
Bashara, J. F., Houston	10,691
Bryan Oil Corp., Houston	989
Big Lake Oil Co., Pittsburgh, Pa.	1,428,501
Buttram Petroleum Corp., Oklahoma City, Okla.	60,778
Breckenridge Gasoline Co., Toledo, O.	71
Brownlee-Pope Oil Co., Austin	3,406
Barkley & Meadows, Wichita Falls	87,497
Birk & Kelly, Iowa Park	107
Bennett Mills Production Co., Houston	31,046
Big Indian Oil & Devp. Co., Gainesville	739
Bruce, H. J., Wichita Falls	1,623
Blair & Kell, Dallas	649
Bridwell Oil Co., Wichita Falls	12,221
Bridwell & Heydrick, trustees, Wichita Falls	3,558
Bashara & Bashara, Waco	402
Badger Oil Co., Amarillo	8,463
Bullington, Lee, Pendleton & Bullington, Wichita Falls	8,021
Brooks & Hanlon, Inc., Tulsa, Okla.	959
Bartlett Production Co., Rockdale	2,391
Bleakley & Kinnison, Wichita Falls	929
Bonchil Co. (The), Wichita Falls	7,110
Brady Bros., Minerva	2,392
Burke-Greis Oil Co., Tulsa, Okla.	1,927
Burke-Greis & Gwinnup, Tulsa, Okla.	2,239

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LLOYD SMITH COMPANY, Bradford, Pa.
McDONNELL & BRANNEN, Bolivar, N. Y.
HARRIS SUPPLY CO., Wellsville, N. Y.
MITCHELL & GRAHAM, Emlenton, Pa.
G. A. BLAIR & SONS CO., Clintonville, Pa.
SLICKER PIPE & TOOL COMPANY, Knox, Pa.
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In Business for Your Safety

PREFORMED WIRE ROPE

TRADE **TRU-LAY** MARK

[REG. U. S. PAT. OFF]

This Announcement is important—be sure your engineer and buyer see it—

Bridwell & Mayfield, Wichita Falls..	9,433
Bashara, M. J., J. W. Hooser et al, receivers, Wichita Falls	5,938
Buckeye Pipe & Supply Co. (12-31-27), Breckenridge	212
Buckeye Pipe & Supply Co., Breckenridge	201
Briggs-Smith & Stiner, Corsicana	59
Buchanan & McClure, Wichita Falls..	215
Broughton, S. J., Brownwood	71
Beans, Drew, Okmulgee, Okla.	1,129
Cunningham Prod. Co., El Paso	27,639
Crabb & McNeel, San Angelo	1,147
Conner Sons & Cloughley, Gotebo, Okla.	23,047
Craig & Lowrie, Pittsburgh, Pa.	2,675
Currie Oil Production, Washington, D. C.	549
Collier, J. W. and wife, Tipton, Okla.	504
Canary, S. C., et al., Tulsa, Okla.	534
Castlebury, S. A. (12-31-27), Vernon..	583
Center Dome Oil Co. (The), Panhandle	1,438
Cole, W. C., Wichita Falls	2,990
Curry, E. M., Rising Star	2,455
Clark, R. R., Wichita Falls	15,861
California Co. (The), Colorado	965,782
Clara Oil & Production Co., Beaumont	159
Carey, E. S., et al, Wichita Falls	844
Carey, E. S., et al, Wichita Falls	542
Central Holding Co.—Jennings, Wichita Falls	586
Clay, J. D., Houston	1,962
Cushing Refining & Gasoline Co., Cushing, Okla.	22,673
Caldwell, Jno. W., Wichita Falls	1,611
Cooper & Hamilton, Olney	482
Cashdollar & Snyder, Brownwood	254
Clara Oil Co., Wichita Falls	277
Culbertson Bros. Co., Ft. Worth	2,202
Campbell & Wills, Burkburnett	1,809
Cranfill Bros. Oil Co., Wichita Falls..	976
Capitol Oil Co., Orange	5,796
Canyon Oil & Gas Co., Inc., Cross Plains	2,339
Clear Lake Oil Co., Rockdale	2,000
Cotton, J. H. & Co., Wichita Falls	1,475
Coffey & Graham, Wichita Falls	455
Christie Bros., Wichita Falls	10,149
Cisco Oil Co., Tulsa, Okla.	38,938
Church-Weekley-Fields et al, Ft. Worth	92,697
Caruthers Co., San Antonio	2,035
Cranfill Bros. Oil Co., Dallas	4,132
Camp Oil & Gas Co., Wichita Falls..	2,908
Conway Bros., Ranger	80
Conway Bros. & Gholson, Ranger	210
Church & Fields, Ft. Worth	19,081
Curtis, Jas. A., Wichita Falls	2,462
Clem Oil Co., Houston	505
Crown Central Petroleum Corp., Houston	68,350
Crown Oil & Refg. Co., Houston	12,245
Culbertson Co., Wichita Falls	12,006
Carter, Roy I., Wichita Falls	15,433
Charter Oil Co., Brownwood	25,942
Chapman, P. A., Jr., Eastland	630
Collins, J. A. & Co., Corsicana	7,705
Cullen-West & Pillott, Houston	79,383
Cullen, H. R., et al, Houston	73,021
Chapman, P. A. estate, Waxahachie	17,249
Caudle, Fifer, Rockdale	364
Columbia Petroleum Co., Mirando City	20,139
Cluney et al, Breckenridge	244
Cohen, Aaron, Baltimore, Md.	11,151
Coyle-Concord Oil Co., San Antonio	10,632
Coons & Hotchkiss, Graham	1,910
Coffey & Schlaffke, Electra	134
Centinental Oil Co. of Texas, Wichita Falls	629,815
Cowling & Newell Oil Co., Burkburnett	312
Cowling & Hoppes, Burkburnett	245
Central Oil Co., Cameron	1,744
Carter, Fine & Carter, Wichita Falls..	2,573
Cox, Edwin B., Ardmore, Okla.	1,993
Cook-Reeder et al, Wichita Falls	6,039
Chapman, E. L., trustee, Ft. Worth..	1,518
Champlin Refg. Co. and J. T. Parks, Enid, Okla.	58,618
Cline, W. D., et al, Wichita Falls	552
Consolidated Oil Co. of Texas, Wichita Falls	23,531
Crosscut Corporation (The), Ft. Worth	2,084
Carlin & Tobin, Ranger	297
Carlin, W. W., Ranger	352
Cook, R. H., Electra	411
Clarkson, William, Jr., Corsicana	1,075
Chestnut & Smith, Tulsa, Okla.	2,042
Cosden, J. S., Inc., Ft. Worth	7,658
Cornhusker Oil Co., Lincoln, Neb.	2,689
Chenault, Palmer & Burch, Wichita Falls	15,965
Chenault, Palmer & Burch, Wichita Falls	3,381
Center Field Oil Co., Amarillo	414
Chenault, W. L., Amarillo	820
Continental Supply Co., St. Louis, Mo.	544
Cosa Oil Co. (12-31-27), Cisco	469
Cosa Oil Co., Cisco	403
Clark, C. W., Wichita Falls	206
Coffield & Hale Oil Co., Rockdale	3,992
Cranfill & Reynolds, Cisco	665,056
Corpus Christi Oil Co., Corpus Christi	760
Corpus Christi Oil Co. (12-31-27), Corpus Christi	392
Central Texas Refg. Co., Brownwood	9,445
Coppock & Coleman, Iowa Park	6,317
Chapman, E. L. (12-31-27), Ft. Worth	2,953
Castlebury, S. A., Vernon	354
Coble-Whittenburg Oil Co., Amarillo.	8,319
Cockrell-McIlroy Oil Co., Inc., Amarillo	40,788
Deering, Jno. A., Houston	8,886
Dorian, R. P., Wichita Falls	7,205
Dominion Oil Co., Tulsa, Okla.	1,149
Dale & Crawford, Electra	851
Dayton Oil Co., Dayton	687
Davis, Caroline A., Somerset	437
Dalton-Bell Oil Co., Mineral Wells	596
Duke-Langford Oil Co., Wichita Falls	900
Durston, H. H., Ft. Worth	1,203
Deep Sands Syndicate, Corsicana	460
Dull-Earls Texas Co., Albany	403
Dale Oil Corp., Wichita Falls	23,229
Davis, W. F., Wichita Falls	1,151
Dale Oil & Refg. Co., Wichita Falls	2,422
Dismukes, H. A., receiver, Liberty	5,385
Dennis, J. S., Moran	2,068
Duho Oil Co., Houston	725

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HIGH GRADE UNIFORM QUALITY

Gasoline	Pale Oils	Machine Oils	Waxes
Kerosene	Red Oils	Cylinder Oils	Asphalts
Fuel Oils	Black Oil	Car Oils	Road Oils
Diesel Fuels	Floor Oils	Greases	Asphalt Cement
Bunker Oils	Spindle Oils	Cup Greases	Pipe Coating
Signal Oils	Motor Oils	Gear Lubricants	Roofing
Miners Oil	Engine Oils	Axle Greases	Roofing Cement
Gas Oil	Dynamo Oils	Wire Rope Lubricants	
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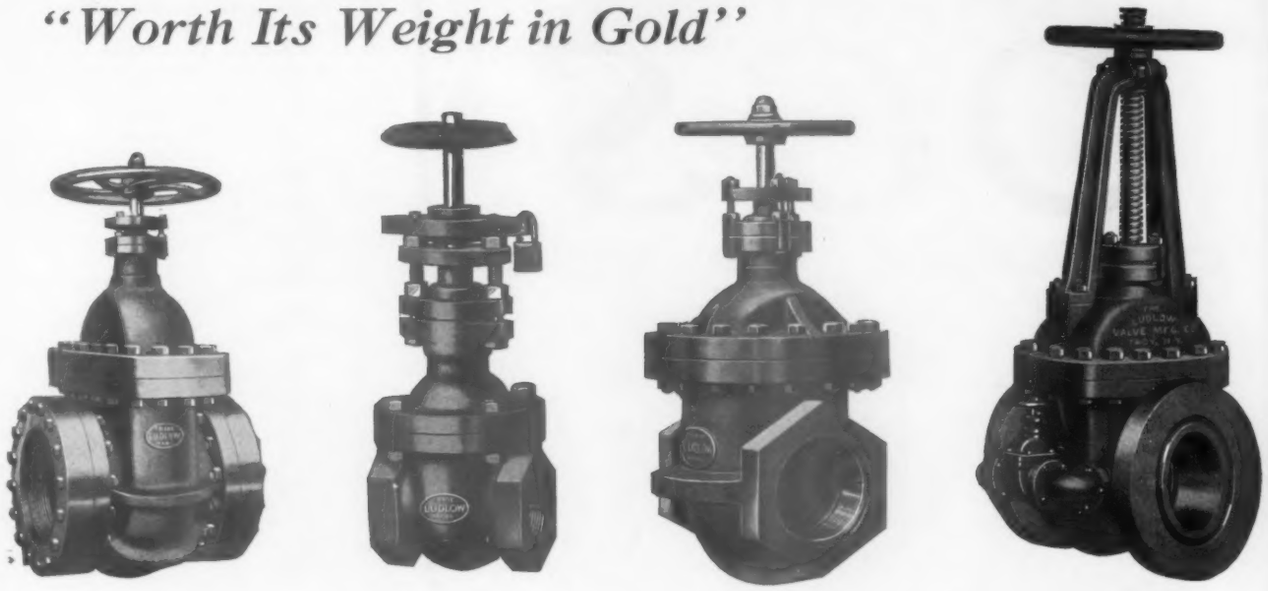

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Eliminate Valve Troubles

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THE LUDLOW VALVE MFG. CO.

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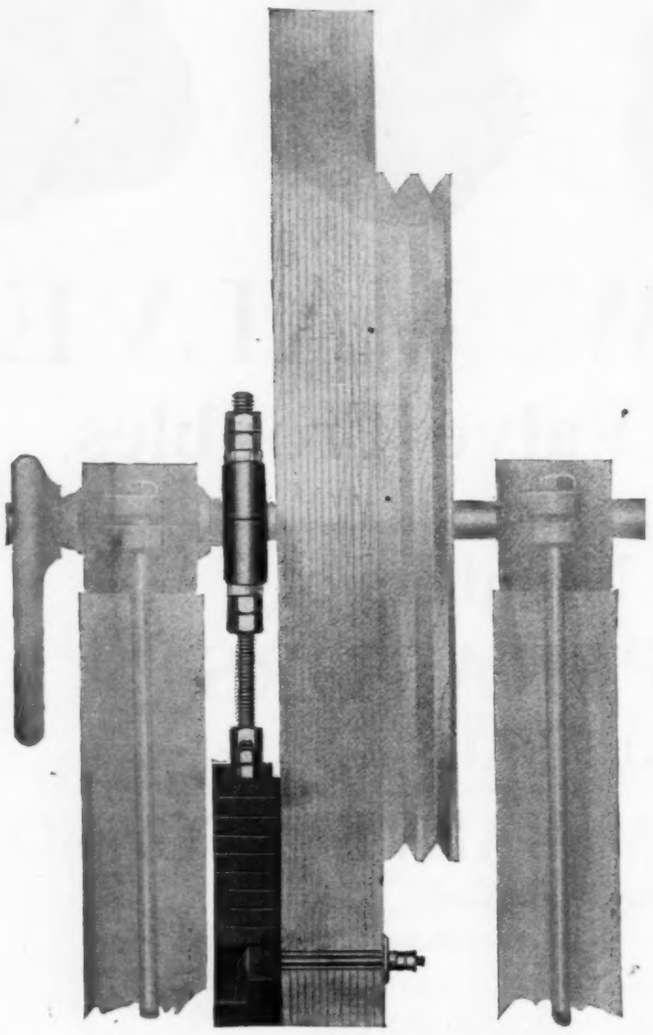
EQUALIZERS MAKE HEAVY WELLS PUMP EASY



FOR EITHER WOOD OR STEEL BANDWHEELS

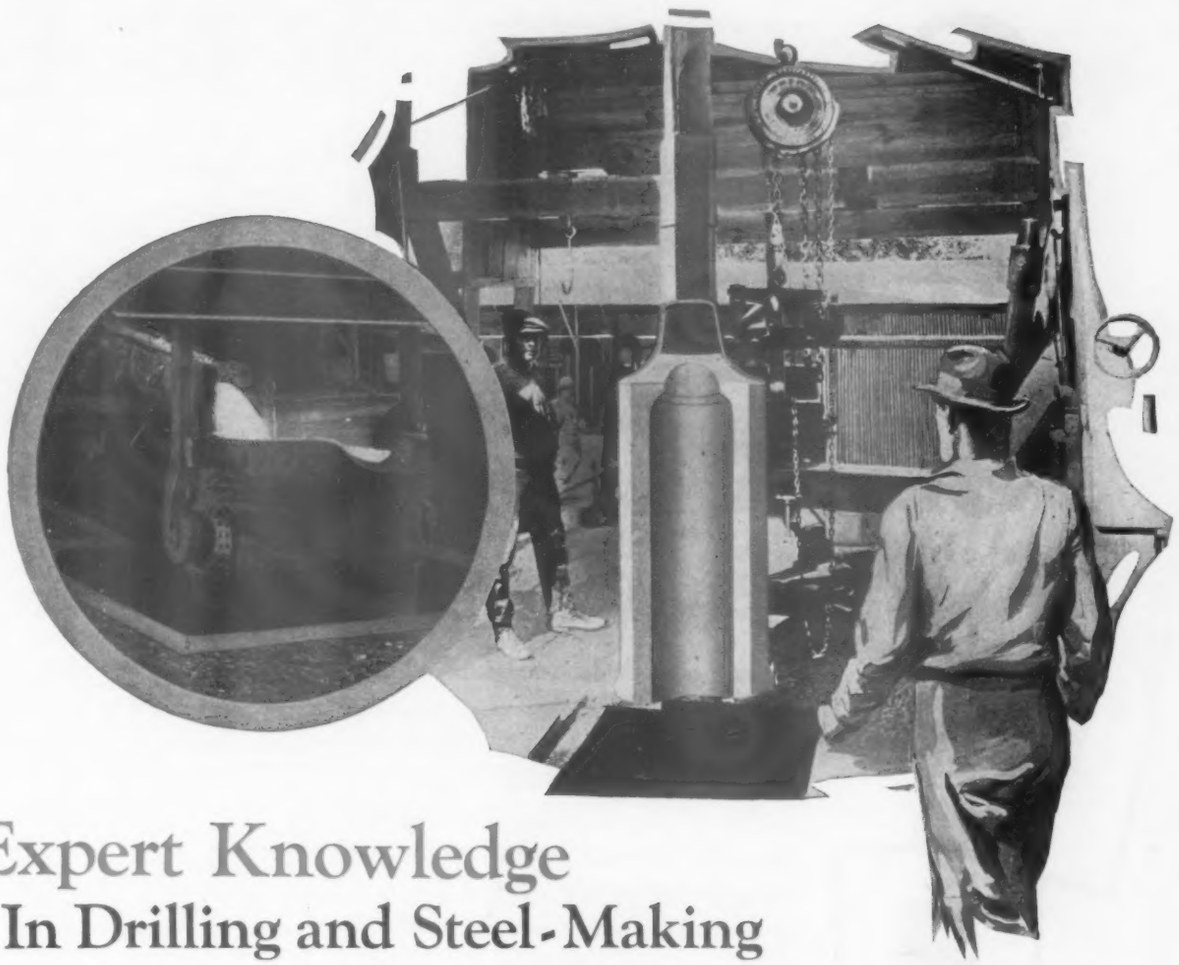
REQUEST BULLETIN 88 FOR DETAILS

Manufactured by

THE OIL COUNTRY SPECIALTIES MFG. CO.

COFFEYVILLE, KANSAS

Name, Address—	Barrels
Dixie Drilling Co., Ft. Worth	572
Duffield-Howard Oil Co., Tulsa, Okla.	1,062
Dale-Knotts Oil Co., Wichita Falls	210
Duncan & Stratton, Cross Plains	437
Dixie Oil Co., Inc., Shreveport, La.	158,209
Deutser, B., trustee, Beaumont	1,030
Douglas Bros. Oil Co., Electra	551
Devonian Oil Co., Tulsa, Okla.	43,173
Diana Oil Co., Tulsa, Okla.	2,076
Douglas Oil Co., Tulsa, Okla.	2,263
Dunigan Bros., Amarillo	1,252
Delmar Oil Co., Bartlesville, Okla.	2,615
Douglas Production Co., Electra	1,949
Davis, L. R., Tulsa, Okla.	168
Dixon, Reeder & Cook, Wichita Falls	1,182
Dixon & Reeder, Wichita Falls	312
Derby, Haines & Williams, Wichita, Kan.	17,884
Derby & Haines, Wichita, Kan.	13,608
Duquesne Oil Corp., Eastland	185
Dillon-Glasscock Co., San Antonio	631
Davis & Wallace, Cameron	1,967
Dalton-Jack Oil Co., Ft. Worth	2,091
Danciger Oil & Refg. Co. of Texas, Ft. Worth	7,586
Danciger Oil & Refg. Co. of Texas, Ft. Worth	297,304
Dibble Oil Co., San Antonio	1,174
Dean Oil Co., Burkburnett	22
Dunnigan & Wylie, Albany	512
Dudley, G. S., Iowa Park	1,323
Double Five Oil Co., Amarillo	1,394
Dallas Petroleum Co., Dallas	958
Den-Wich Oil Co., Abilene	2,065
Dunaway, J. E., et al, Wichita Falls	2,989
Dixon Creek Oil Co., Inc., Amarillo	210,129
Delaney & Associates Oil Co., Pampa	27,160
Eureka Producing Co., Tulsa, Okla.	18,802
El Paso Burkburnett Oil Co., El Paso	46
Empire Gas & Fuel Co. of Me., Bartlesville, Okla.	271,756
Electra Production Co., Inc., Electra	1,640
Eidson & Baker, Dallas	185
Ellis & Anderson, San Antonio	163
Ellison Oil Co., Rockdale	73
East Batson Oil Co., Batson	23,724
Eddleman, E. H., et al, Wichita Falls	1,017
Eddy Oil Co., Beaumont	1,763
Eastern Petroleum Corp., Wichita Falls	2,619
Eggers, J. E., trustee	776
Engel, E. A., Albany (b)	660
Echo Oil Co., Amarillo	6,113
Eastland Oil Co., Ft. Worth	337,479
Erickson, David, Wichita Falls	65
Easton, E. S., Wichita Falls	1,933
Electra Gulf Oil Co., Electra	4,563
Erie Investment, Ltd., of Texas, Toronto, Canada	585
Earnest Oil Co., Rockdale	707
Emrick, U. R., Minerva	480
Four Oil Co., Wichita Falls	2,979
Freedman, L. H., Mexia	4,483
Freeman-Hampton Oil Corp. ("A"), Wichita Falls	6,506
Freeman-Hampton Oil Corp. ("B"), Wichita Falls	1,293
Fitzgerald Lease, Wichita Falls	431
Fogle Oil Co., Minerva	1,584
Foster, J. F., receiver (Empire-Pierce), Ft. Worth	10,803
Fisher, J. A. (12-31-27), Wichita Falls	1,953
Farlyn Oil Co., Houston	22,452
Ferguson, W. R., Wichita Falls	573
Farish & Ireland lease, Houston	4,695
Falls Production Co., Wichita Falls	8,431
Fresno Oil Co., Wichita Falls	16,052
Fisher, J. A., Wichita Falls	1,975
Flynn, W. B., Beaumont	3,863
Fort Bend Oil Co., Houston	17,848
Fensland Oil Co. of Texas, Independence, Kan.	6,841
Franchot, D. W. & Co., Tulsa, Okla.	64
Ferguson & Watson, Electra	1,556
Fuqua & Hipp, Grandfield, Okla.	1,431
Franklin, Wirt, Ardmore, Okla.	123
Fountain Production Co., Saratoga	2,214
Frontier Oil Co., San Antonio	12,328
Fort Ring Oil & Gas Co., Ft. Worth	3,138
Fain-McGaha Oil Corp., Wichita Falls	166,453
Fleming & Kimbell, Sherman	5,857
F. H. E. Oil Co., Sherman	20,001
Gray & Adams, Inc. (12-31-27), Gainesville	13,819
Green, Geo. M., Oklahoma City, Okla.	967
Gardner Bros. & Collins, Wichita Falls	2,018



Expert Knowledge
In Drilling and Steel-Making

OIL well drilling requires an expert knowledge that comes only with long years of drilling experience. Similarly, in making steels for drilling and fishing tools, an expert knowledge of drilling requirements is most essential.

First in the field, Crucible Steel Company of America possesses the longest experience in the production of steels for drilling and fishing tools. Its Crescent Hammered Bit and Jar Steels made hole in the first well drilled in America more than sixty-eight years ago, and since that time have made many outstanding performance records.

Our Metallurgists, skilled in the solution of practical drilling problems in steel, are at the service of contractors, drillers and manufacturers of oil well tools and specialties who are interested in improved steels.

CRUCIBLE STEEL COMPANY OF AMERICA

General Offices: 17 East 42nd St., New York, N. Y.

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CRUCIBLE STEEL COMPANY OF AMERICA

Crescent Hammered Bit Steel

Furnished in all sizes, in plain sections, or with tong holds drawn to any diameter or taper.

Crescent Hammered Jar Steel

Furnished in all sizes, with corners knocked down, nicked in center if desired, and to any length.

Crescent Hammered Jar Capping Steel

Furnished in all sizes with corners broken down. Readily welded and heat-treated.

Calumet Box and Pin Steel

Furnished in all sizes; cut in short pieces if desired.

Max-El Slip Steel

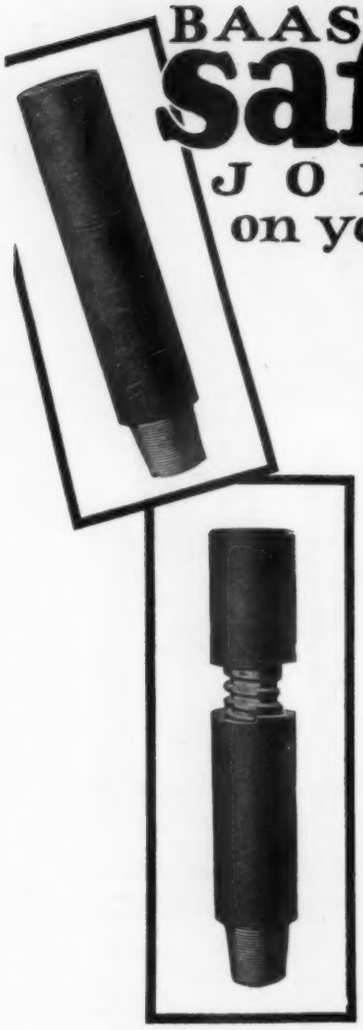
When properly heat-treated, it is possible to obtain great toughness and high physical values; furnished in all sizes and carburizing and straight hardening analysis.

Max-El Socket Steel

The best for swivel and stiff sockets; when properly heat-treated, results in high tensile values coupled with toughness resulting in greatest resistance to battering and wear. Furnished in any size, rounds or in billets.

Crescent Hammered Bit & Jar Steel

fish with BAASH-ROSS safety JOINTS on your tools



Don't take a chance on losing all or part of your string when the fish can't be pulled. A Baash-Ross safety joint in the string lets you back off without danger of losing anything. Rotating in the reverse direction releases the whole string above the fishing tool—reconnection after further washing over is simple and sure. Right or left hand threads—and they can't possibly jam or lock. Lots of other operators have saved tools, time and money with the Baash-Ross safety joint. Why not you? Write for descriptive folder and price list.

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There is Over 3,000,000 Feet of

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"High Manganese" RODS

Made in Both Box and Pin and Double-Pin Types

S. M. JONES COMPANY, Toledo, Ohio

TULSA OFFICE: 422-423 McBIRNEY BLDG.

Name, Address—	Barrels
Gulf Production Co., Houston	6,585,359
Gladys Belle Oil Co., Tulsa, Okla.	5,343
Gulf Coast Oil Corp., Dallas	12,401
Grand Duke Producing Co., Muskogee, Okla.	143
Glenridge Oil Corp., St. Louis, Mo. (2)	4,324
Godley Oil & Gas Co., Dallas	15,258
Gillman Bros. (10-1-27 to 3-31-28), Amarillo	2,031
Granite Oil & Gas Co., Ridgeway, Colo.	.....
Gainesville Oil & Devp. Co. (12-31), Gainesville	6,081
Ginter-Lange Oil Co., San Antonio	1,789
Gunn Production Co., Cross Plains	1,722
Gilbert Co. (The), Beaumont	6,178
Golding-Phillips Oil Co., Amarillo	1,638
Gaither Production Co., Rockdale	1,374
Gladis Oil Co., Saratoga	3,154
G. & K. Production Co., San Antonio	1,523
Gardy, D., Electra	428
Gainesville Oil & Devp. Co., Gainesville	3,225
Goldelline Oil Corp., Oklahoma City, Okla.	11,804
Grayce Oil Co., Wichita Falls	30,407
Gwinnup, H. G., Ft. Worth	851
Gilliland, C. W., Wichita Falls	2,489
Graham, H. L., Wichita Falls	1,265
Goolsbee & Graham, Wichita Falls	219
Gilman & McMurray, Cisco	22,765
Gilman, R. F., Cisco	164
Gandy, L. O., Wortham	3,940
Gultex Production Co., Waxahachie	2,853
Gholson, J. M., et al, Ranger	5,801
Gilman & Conway Bros., Ranger	6,780
Garrett, W. T., Eastland	618
Groupe No. 1 Oil Corporation, Big Lake	410,446
Glasscock, Rosa V., San Antonio	837
Gilliam-Logan Oil Co., Ft. Worth	2,628
Gates-Bacon-Lea, Wichita Falls	12,853
Gray, T. H., Ft. Worth	1,014
Gallagher & Lawson, Desdemonia	156
Galvez Oil Corp., Tulsa, Okla.	4,209
Gholson, Moorman & Dorsey et al, Ranger	2,634
Gordan & Sharp, Houston	5,161
Gordan, H. B., Jr., trustee, Houston	32,668
Gordan, H. B., Jr., and W. B. Sharp, Houston	12,597
Gates Oil Co., Ardmore, Okla.	3,773
Golden West Oil Co., San Antonio	23,023
Gordon Oil Co. of Texas, Logan, O.	77
Graham & Lash, Cisco	230
Glasscock Leasing Syndicate, San Antonio	1,784
Golding, Dudley C., Wichita Falls	2,834
Gwynn, P. F., Wichita Falls	216
Gwynn-Boyd Drilling Co., Wichita Falls	9,311
Gwynn, P. F., agent, Wichita Falls	1,722
Gardner, Wilson & McCaldin, Wichita Falls	3,657
Golding & Cochran, Wichita Falls	19,068
Grayburg Oil Co., San Antonio	192,599
Glass Bros., Rosebud	797
Gates Oil Co. of Wyoming, Denver, Colo.	10,360
Godfrey, F. L., Enid, Okla.	94
Goldenrod Oil Co., Dallas	783
Gopher Oil Co., Amarillo	1,330
Gibson Oil Corp., Amarillo	80,100
Goolsbee & Goolsbee, Wichita Falls	286
Guaranty Oil Co., Electra	155
Guthrie, Cole & Ferguson, Wichita Falls	993
Gilliland Oil Co., Tulsa, Okla.	821
Hobbs Oil Co., Tulsa, Okla.	2,754
Hammond, L. P., Wichita Falls	2,178
Houghland Production Co., Dallas	4,328
Houston Oil Co. of Texas, Houston	8,900
Hemby, J. M., Electra	847
Handrick, August, Moran	230
Helvetia Oil Co., San Antonio	14,542
Hitchman & Howard, San Antonio	2,970
Hamilton, Robt., et al, Smithport, Pa.	391
Hamilton & Martin, Wichita Falls	3,820
Hammond, J. G., Wichita Falls	270
Herogan Oil Co., Amarillo	2,562
Harvey, R. A., Houston	1,888
Hickey, T. J., et al, Corsicana	80

Quality and Service

Actual Results with Pipe Line in Oklahoma Tell the Story

Fifty-five miles of our 6" and 4" socketed line pipe laid in Oklahoma, subjected to 900 lbs. working pressure in the field, developed no leaks in pipe or in mill ends of collars and only eight collar leaks in the field ends, all of which eight leaks were caused by handling in the field. In forty miles out of these fifty-five miles, there was only one of these leaks, the other seven being bunched in fifteen miles, due to unusual handling of this part of the line.

Here's the field report:—

"LINE WAS LAID ON TOP OF GROUND AND NOT COVERED FOR A LONG TIME CAUSING CONTRACTION AND EXPANSION WHICH MADE THE TEST VERY SEVERE."

"LINE WAS DROPPED IN TRENCH WHILE THE 900 LBS. PRESSURE WAS STILL ON."

"PIPE WAS LAID OVER ROUGH COUNTRY AND BENDS WERE MADE MORE SATISFACTORILY THAN WITH OTHER MAKES OF PIPE."

"THERE WAS NOT A SINGLE BEND WHICH CAUSED ANY TROUBLE WITH COUPLING JOINTS."

The pictures show this line stocked in field ready for laying. CHESTER TAKES CARE OF ITS CUSTOMERS' NEEDS.

Chester also makes all classes of Genuine Wrought Iron Oil Country Tubular Goods.

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Petroleum Supply Co.,
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Wagner Supply Co.,
Fort Worth, Cross Plains, Breckenridge, Best, Amarillo, Borger, Brownwood and Odessa, Texas

Bridgeport Machine Co.,
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Hillman-Cooney, Inc.,
1118 Santa Fe Ave.,
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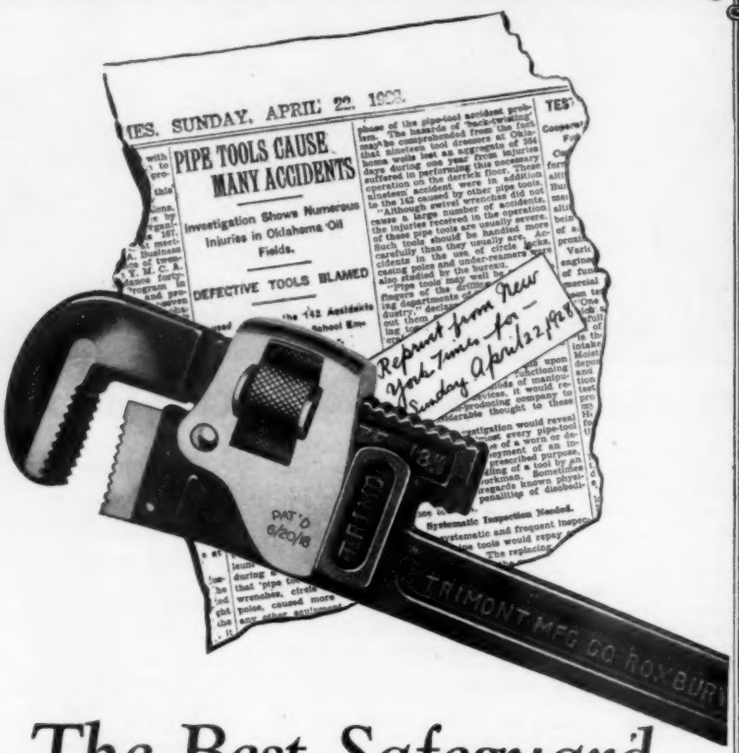
Great Northern Tool & Supply Co.,
Billings and Kevin, Mont.
Kemmerer and Cody, Wyo.

CHESTER
LINE PIPE


PIPE TOOLS CAUSE MANY ACCIDENTS
Investigation Shows Numerous Injuries in Oklahoma Oil Fields.
DEFECTIVE TOOLS BLAMED
Reprint from New York Times—Sunday April 22/28
TRIMONT MFG CO ROXBURY

The Best Safeguard -- Use TRIMO Tools!

The newspaper article above, which appeared in the *New York Times*, is based on an investigation conducted by the United States Bureau of Mines.

The article stresses the danger and expense of using worn and defective pipe tools.

One of the best safeguards against the accident hazard is to standardize on TRIMO Pipe Tools, internationally famous for their unfailing high quality and safety features. There is no danger of slipping with a TRIMO Pipe Wrench. The insert jaws can be easily replaced when worn. Handle and jaws are drop forged.

The Giant TRIMO Chain Tongs are as strong as a chain wrench can be made.

Play Safe—Insist on

TRIMO

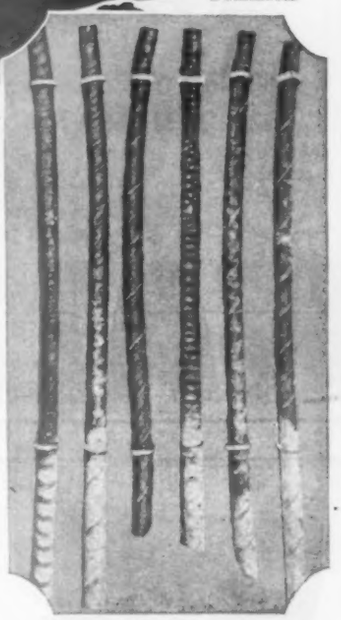
TRIMONT MFG. CO., INC.
Roxbury (Boston) Mass.

Name, Address—	Barrels
Howard, Duffield & Berlin, Tulsa, Okla.	1,587
Hooser, Jno. W., et al, receivers, American Refining Co., Inc., Wichita Falls	70,426
Hamon, Jake L., Jr., Ardmore, Okla.	8,632
Hooser, Jno. W., et al, receivers, N. B. Chenault, Wichita Falls	1,968
Halmack Oil Co., Dallas	2,945
Humphreys Corporation, Houston	52,454
Humble Oil & Refg. Co., Houston	3,895,649
Horn & Horn, trustees, Kansas City, Mo.	11,108
Hedrick & Camp Drilling Co., Wichita Falls	9,614
Herford Oil Co., Electra	2,280
Hagaman Refining Corporation, Ranger	312
Hueco-Ranger Oil Co., El Paso	488
Harrison Oil Co., Houston	17,424
Humphreys Bros., Inc., Houston	410
Hambleton, Geo., San Antonio	519
Howard Petroleum Corp., Tulsa, Okla.	877
H-Y Oil Co., Ft. Worth	3,073
Hefley-McIntosh & Thomas, Cameron	768
Hoffman & Page, Eastland	613
Hope Oil & Gas Co., Ft. Worth	16,550
Hinson & Tidwell, Graham	3,992
Holmes & Huey, Amarillo	4,249
H. B. J. Oil & Gas Trust, Baltimore, Md.	2,421
Hardy Oil Co., Wichita Falls	2,822
Hyde, George, Houston	4,497
Hyde Production Co., Houston	6,900
House-Lewis Oil Co., Cameron	737
Holloway, R. R., trustee, Brownwood	402
Hughes, J. K. Oil Co., Mexia	33,115
Hoppes, W. T., Burkburnett	170
Hughes, Wm. K., trustee, St. Louis, Mo.	1,014
Hooser, Jno. W., et al, receivers, W. M. Priddy, Wichita Falls	9,641
Hickok Producing & Devp. Co., Toledo, O.	5,850
Hull Oil Co., Beaumont	10,701
Hammond & Heyser, Wichita Falls	1,167
Hammon, Heyser & Garrett, special, Wichita Falls	11,263
Hammon, Heyser & Garrett, Wichita Falls	1,275
Hammon & Garrett, Wichita Falls	4,537
Hammon, Heyser, Garrett & King, Wichita Falls	2,456
Hill, W. R., trustee, Burkburnett	268
Hardie, J. M. & Co., Sour Lake	917
Hamilton, H. L. Estate, San Antonio	5,320
Houston Production Co., Houston	11,439
Hooser Oil & Devp. Co., Dallas	17,564
Hutton Oil Corporation, Cisco	1,308
Home Oil & Gas Co., Albany	3,083
Hanlon Gasoline Co., Tulsa, Okla.	2,150
Hill & Riley, Amarillo	2,057
Holmes & Riley, Amarillo	6,356
Harris & Simons, Tulsa, Okla.	8,596
Harris, Fisher Oil Co., Cisco	732
Homaokla Oil Co., Oklahoma City, Okla.	4,415
Holbrook & Woods, Wichita Falls	16,829
Huber, J. M. Co., of La., Inc., Breckenridge	438
Hines, Harry, Wichita Falls	124
Howell, M. L., Lohn	243
Hill & Dowell, Batson	15,507
Harris-Hayes Co., Okmulgee, Okla.	422
Isaacs, B. K., Ft. Worth	555
Independent Oil & Gas Co., Tulsa, Okla.	1,118,765
Infield Petroleum Co., Austin	1,112
Idaho Oil Co., San Antonio	1,011
Ilseng, A. G., Ft. Worth	184
Ilseng Production Co., Ft. Worth	1,300
Interocean Oil Co., Tulsa, Okla.	15,446
Irick Oil Co., Waskom	365
Judson Oil Co., Tulsa, Okla.	10,584
Johnson Bros., San Antonio	9,043
Jackson, T. H., Sipe Springs	174
Japhet Production Co., Houston	12,817
James, Tom, Albany	8,901
Jones, W. A., Minerva	233
Jones, J. A., Moran	390
Jones, Edwin M., El Dorado, Ark.	15,226
Janellen Oil Co., Tulsa, Okla.	290
Jones, W. A., Minerva	876
Jones, W. A., Minerva	239
Justin Oil Corporation, et al, Wichita Falls	12,517

ARMOR-PLATED

PHOTO BY UNDERWOOD & UNDERWOOD

The heart of the modern battleship is encased in a coat of armor many inches in thickness---varying from 18 inches around the most vital parts, to 4 inches or less on those parts not so vulnerable.



Borings---reduced size. Note depth and comparatively uniform thickness of the "protective armor" which encases the heartwood.

THE HEARTWOOD of every "Black Beauty" Creosoted Southern Pine Pole is surrounded by a thick shell of creosote-impregnated sapwood. This toxic, chemically-resistant "coat of armor" resists the attack of all enemies---decay-producing fungus growths, termites, woodpeckers, acid soils, moisture and the other forces which weaken and destroy untreated poles. The great natural strength of "Black Beauty" Poles is retained practically undiminished year after year.

Using untreated poles is an economic waste

Executives all over the country are appreciating more and more the economic advantages that creosoted pine poles hold over untreated poles of any species.

Tall, straight and strong---with a modulus of rupture shown by repeated tests at the Forest Products Laboratory to be greater than that of any other wood commercially available for poles---creosoted pine poles are the ideal carrier for telephone and power lines.

Assured long service life; freedom from need for attention after installation; high resistance to wind storms and sleet storms; the savings effected by preventing expensive service interruptions; and low annual cost (far lower than untreated poles) make them one of the soundest investments any company can make.

And when "Black Beauty" Poles are specified, you know that you are getting the very best.

As a means of identification, and a mark of quality, "Black Beauty" Poles are now trade marked with a red roof.

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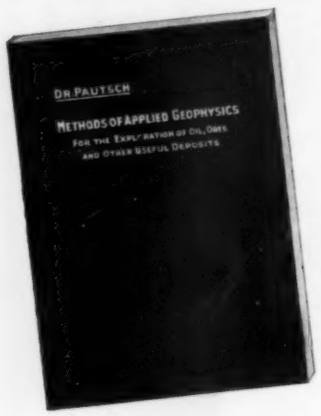

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Julia Oil Co., Sour Lake	3,980
Jackson Co. (The), San Antonio	1,351
Jackson, J. S., trustee, Sour Lake	2,400
Junior Oil Co., Rockdale	447
Jones, R. C. & Co., Inc., Cushing, Okla.	197
Junior Oil Co., Cross Plains	1,872
Jennings, J. C., et al, Wichita Falls	1,133
Jacob Oil & Gas Co., Graham	142
Knotts, F. F., Wichita Falls	365
Kleinfelder, B. F., Breckenridge	547
King, Anna B., Muskogee, Okla.	686
Kishi, K., Terry	1,385
Kluncke, George, Tr., Von Army	1,908
Kerr, T. P., Corsicana	515
Kolp, C. F., Electra	10,945
Kirby Petroleum Co., Houston	25,126
Kate Bell Oil Company (The), Dallas	1,392
Kurz Oil Co., Somerset	543
Kemrow Co., Wooster, Ohio	16,920
Kent, G. C., Corsicana	29,242
King & Daniel, Donehoo Lease, Wichita Falls	4,016
King & Daniel, Daniel's Lease, Wichita Falls	1,285
Kavanaugh Petroleum Co., Houston	1,182
King Royalty Co., Wichita Falls	28,788
Kuhlemeier-Kleiner Oil Co., Cisco	1,109
Keen & Woolf Oil Co., Shreveport, La.	23,270
Kirk & Evans, Gorman	6,342
Koenig, Max W., San Antonio	15,559
Keener Oil & Gas Co. of Texas, Tulsa, Okla.	5,037
Kone Production Co., San Antonio	10,634
Kewanee, The Oil & Gas Co., Titusville, Pa.	115,379
Kokomo Pet. Co., Gorman	1,215
K. & S. Corporation (The), Laredo	18,541
Kahle, Gracey & Diver, Bridgeport, Ill.	8,427
Kistler, Frank E. & Co., Inc., Denver, Colo.	24,542
Killam, O. W., Laredo	2,213
Killam, O. W., et al, Laredo	201
Kemp, Randel, Wilson, Electra	83
Keystone Production Co. of Texas, Ft. Worth	4,293
Kaufman, L., San Antonio	486
Kershaw, L. R., Muskogee, Okla.	1,678
Kleiner, H-Y Oil Co. & West, Cisco	2,163
Kendrick, P. S., Albany	556
Lencook Oil Co., Electra	614
Lain Oil Co., San Antonio	1,377
Lubell, Samuel L., et al, Tulsa, Okla.	39,652
Liquid Gold Petroleum Co. (9-30-23 to 3-1-28), Wichita Falls	9,673
Little Flower Oil Co., St. Louis, Mo.	921
Little Flower Oil Co. (12-31-27), St. Louis, Mo.	986
Linedo Oil Co., Lincoln, Nebraska	2,185
Lynch, John D., trustee, Sioux Falls, S. D.	2,703
Lynch, John D., trustee (12-31-27), Sioux Falls, S. D.	3,358
Lynch, John D, trustee (9-30-27), Sioux Falls, S. D.	3,583
Lytle Oil Association, Lytle	274
Lubell, Samuel L., et al (12-31-27), Tulsa, Okla.	5,316
Lake Shore Oil Co., Houston	1,841
Laning, Mrs. R. A., Wichita Falls	(Back tax)
Lake Erie Trust Co. (The), trustee, Cleveland, Ohio	896
Lewis, J. E., et al, Eastland	1,138
Lomax, Thornton, Jr., Wichita Falls	4,747
Larkin, W. B., et al, Wichita Falls	378
Leonard Petroleum Co., Washington, Pa.	1,434
Lawson, Eugene B., Tulsa, Okla.	52,602
Loggie & Arendt Oil Co., Albany	2,404
Lackey, W. G., Tulsa, Okla.	3,582
Lewis & Moore (3-31-27), Eastland	.....
Lockhart & Co., Los Angeles, Calif.	20,520
Lake View Oil Co., Sour Lake	13,820
Lamb & Shaw, Brownwood	2,286
Lamb, Geo. E., Brownwood	288
Laredo Oil Co., Laredo	2,410
Lytle, C. F., Mexia	12,264
Lebow, C. H., Tulsa	1,146
Little Caddo Syndicate, Ft. Worth	1,970
Lucey Petroleum Co., Dallas	762
Lewis, J. E. & Co., Eastland	848
Lee, Homer, Wichita Falls	1,911

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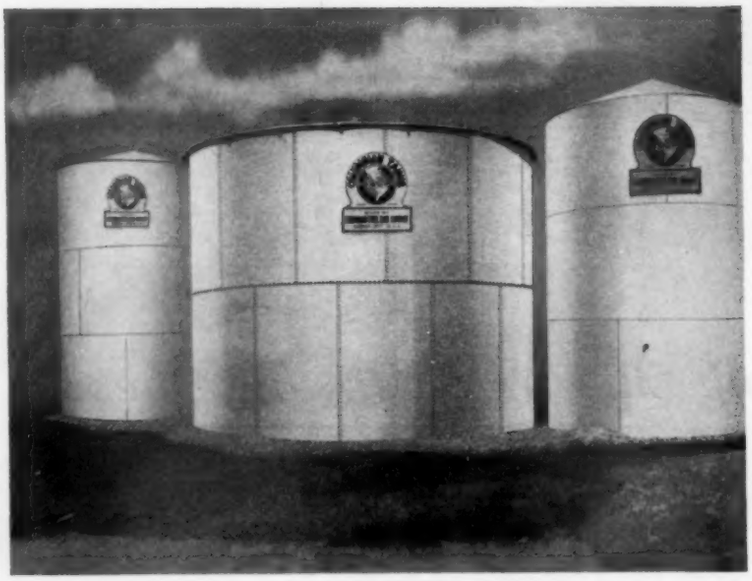

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Company, Well and Location	Initial Production Bbls.	Depth
Louisiana Oil Refining Corporation, Shreveport, La.	23,072	
Liberty Oil & Gas Trust, Baltimore, Md.	1,082	
Lesh, John I. & Co., Wichita Falls	13,312	
Levy, Leonard M., Ft. Worth	1,992	
Lake Graham Oil Co., Houston	2,213	
Lowe, Delaney & Carter, DeLeon	1,344	
Leonard, Geo., Somerset	556	
Leonard Oil Co., Somerset	240	
Lone Star Gas Co., Dallas	9,236	
Long, Roy Oil Co., Navasota	3,197	
Letwin, Sam, Breckenridge	1,795	
Loewenstein Oil Co., Rockdale	1,348	
Landreth Production Corporation, Ft. Worth	1,721,002	
Levy, Leonard M., Ranger	3,625	
Little, Wm., Breckenridge	[illegible]	
Lesh & McCall, Nocona	34,037	
Lesh, Kilcrease & Co., Nocona	3,327	
Lanning, Mrs. R. A., Wichita Falls	5,751	
Langford, W. S., Wichita Falls	1,316	
Lynch-Stahl & Burress, Ardmore, Okla.	7,958	
Manhattan Oil Co. (The), Kansas City, Mo.	9,731	
Midwest Exploration Co. (The), Amarillo	185,475	
Maer & Staniforth, Wichita Falls	2,203	
Marland Oil Co. of Texas, Ponca City, Okla.	993,052	
Mennis, G. W., Wichita Falls	5,010	
Merideth & Gent, Wichita Falls	2,559	
Moore, C. O., Oil Corporation, St. Louis, Mo.	4,229	
Madden & Hunt, Olney	3,715	
Maben Oil Corporation, Wichita Falls	418	
Minor Oil Co., Beaumont	8,599	
McDonald, M. C., Putnam	5,733	
Magee Brothers, Electra	726	
McElreath & Suggett and Anderson & Gaus, Wichita Falls	1,336	
Moore & Henderson, Tulsa, Okla.	281	
Mills & Garitty, Corsicana	2,093	
McCarter, R. C., Cisco	551	
Minerva Petroleum Co., Minerva	1,097	
McDonald, W. W., et al, Dallas	7,930	
Medio Oil Co., San Antonio	966	
McCarty Oil Co., Wichita Falls	83,178	
Mendenhall Oil Co., Cisco	1,670	
McMurray, J. L., et al, Cisco	3,453	
Macknold Co., San Antonio	320	
Montgomery, Rea-Montgomery, Sedwick	2,286	
Moore, N. A., Eastland	1,249	
Mohegan Oil Co., Mohegan Lake, N. Y.	50	
Madison Oil & Gas Co., Electra	8,387	
Magnolia Petroleum Co., Dallas	3,091,216	
Milham Corporation of Texas, San Antonio	90,014	
Meridian Petroleum Corporation, Tulsa, Okla.	3,523	
Marnet Oil & Gas Co., Tulsa, Okla.	4,629	
McJunkin, Florence, Ranger	885	
Merrick & Bristow, Ardmore, Okla.	7,903	
Minnehoma Oil & Gas Co., Tulsa, Okla.	11,890	
McNallen & Griffin, Tulsa, Okla.	4,416	
McCrary, E. W., Tulsa, Okla.	3,427	
Moutray Oil Co., Abilene	93,641	
Moutray & Son, Abilene	241	
Matador Oil & Gas Co. (The), Quanah	300	
Margay Oil Corporation, Tulsa, Okla.	3,411	
Mid-Continent Petroleum Corporation, Tulsa, Okla.	14,264	
McEwan, J. P., trustee, Ft. Worth	1,264	
Mid-Kansas Oil & Gas Co., Findlay, Ohio	782,805	
Mitcham, G. P., Cisco	1,136	
Midwest & Gulf Co. of Texas, Tulsa, Okla.	933	
McDaniel, E. R., and McDaniel Oil Corp., Cisco	5,252	
McMillen Oil Corp., Otis Phillips, receiver, Amarillo	22,746	
McNamara Oil Co., Beaumont	2,736	
McCullough, Everett, Wichita Falls	650	
McGraw Oil Co., Tulsa, Okla.	2,385	
McBride, W. C., Inc., St. Louis, Mo.	6,622	
McMan Oil & Gas Co., Tulsa, Okla.	282,001	
Moss & Urschel, Mexia	9,716	
Moss & Keeling, Mexia	4,156	
Moss, Urschel & Keys, Mexia	12,858	
Moss, Keeling, et al, Rosson Lease, Mexia	5,836	
McNallen & Letwin, Breckenridge	680	

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Moody Corporation, Houston	173,677
McLester Oil Co., Breckenridge	3,643
Mann & Forbes, Graham	1,990
Mann & Forbes (Dec. 31, 1927), Graham	2,137
M. & V. Oil Co., Wichita Falls	7,169
Maxwell, J. C., Ft. Worth	323,950
Majestic Oil Co., Amarillo	11,980
Mann, F. A., Graham	1,387
Morton, A. D., Bartlesville, Okla.	638
Marsalis Bros., Humble	2,054
Monarch Royalty Corporation, Kansas City, Mo.	35,940
McLester Oil Company, Eastland	51,213
McCall, C., Trustee, Nocona	4,374
McCutchen, C. E., Trustee, Wichita Falls	6,553
Moore, F. L., Trustee, Tulsa, Okla.	3,010
Miller & Miller, Putnam	451
Murchison Oil Co., Wichita Falls	147,924
Moran, W. J., Wichita Falls	3,797
Merrick & Lamb, Ardmore, Okla.	4,486
Meredith, J. D., M, Moran	5,312
McChesney, Nancy, Olney	5,429
Marine Corp., Henry Riley, Recv., Amarillo	14,885
Medina Oil & Gas Association, San Antonio	239
Meredith & Gant, Wichita Falls	898
Mook-Texas Oil Co., Fort Worth	18,889
McIlroy Oil Co., Inc., Amarillo	139,824
Number Nine Oil Co., Tulsa, Okla	2,751
Noack Oil Co., Rockdale	2,357
Newport & Ohio Petroleum Co., Newport, N. Y.	402
National Oil Co., San Antonio	890
New Oil Co. & Home Slicker, Cisco	727
Navarro Oil Co., Houston	187,490
Newton Palmer Oil Co., Rockdale	674
Nabob Oil & Gas Co., Amarillo	9,986
Noble Oil & Gas Co., Tulsa, Okla.	3,270
Norman Oil Co., Wichita Falls	1,860
Nimrod Oil Co., Dallas	213
National Petroleum & Refining Co., Wichita Falls	962
Necessity Oil Corporation, Eastland	1,872
National Investment Co., The, et al, Breckenridge	4,137

Name, Address—	Barrels
Noack and Lanning Shelton Lease, Rockdale	978
Noack & Lanning, Rockdale	138
Noack & McCormick Oil Co., Rockdale	150
New Domain Oil & Gas Co., Pittsburgh, Pa.	5,846
Nutt & Gates, Wichita Falls	1,654
Nunn & McAuley Oil Company, Amarillo	16,998
North Fork Oil Co., Amarillo	4,871
Omohundro, W. B., Wichita Falls	3,206
Old Colony Oil Co., Dayton	1,865
Ohio Somerset Oil Co., The, Cleveland, Ohio	1,759
O'Neil, John, Wichita Falls	13,814
Offenbacher, Emile, Tulsa, Okla.	231
Oil Investment Co., Wichita Falls	3,629
Owenwood Oil Corporation, Fort Worth	1,916
Owenwood Pool No. 3, Fort Worth	4,807
Oltex Oil Company, Fort Worth	2,298
Overby, J. D., Iowa Park	574
Osage Oil Corporation, Tulsa, Okla.	1,462
Osage Development Company, Bartlesville, Okla.	1,551
Offenbacher, Emile, Tulsa, Okla.	184
Olney Oil & Refining Co., Olney	564
Orange Petroleum Corp., Orange	22,861
Olean Petroleum Co., Bristow, Okla.	32,776
Old Ocean Oil Co., Kansas City, Mo.	4,380
Osborne, R. R., et al, Amarillo	5,786
Oil Operators Trust, Fort Worth	40,547
Orient Oil Operating Organization, Wichita, Kansas (Nov. and Dec.)	7,295
Orient Oil Operating Organization, Wichita, Kansas	41,664
Owens Oil Co., Brownwood	946
Oriental Oil Co., Dallas	1,144
Peckham & Harrell, Wichita Falls	1,511
Pelwin Oil Corporation, Wichita Falls	262
Pandem Oil Corporation, Dallas	90,032
Pivoto, M. E., Sour Lake	4,648
Peery, Thos. H., Wichita Falls	1,607
Putnam Oil Company, Tulsa	62,932
Prescott-Phoenix Oil & Gas Co., Muskogee, Okla.	143

Name, Address—	Barrels
Pomona Mutual Oil Syndicate, Pomona, Calif.	3,162
Pantex Oil Co., Fall River, Mass.	25,498
Pioneer Oil, Gas & Refining Co., Danville, Ill.	1,408
Piney Oil & Gas Company, New York, N. Y.	7,681
Parks, J. T., et al, Amarillo	11,575
Parsons, Ed. V., Fort Worth	148
Palo Duro Oil Company, Amarillo	17,570
Price, Russell & Co., Ranger	5,322
Powell, J. L., Wichita Falls	432
Pollard, W. E. & C. E., Pampa	6,646
Preston Oil & Gas Co., Brownwood	168
Portland Drilling Corp., Wichita Falls	1,157
Piper, L. E., Tr., Vernon	1,832
Pure Oil Company, The, Chicago, Ill.	1,107,438
Parry Oil Company of Texas, Inc., The, Fort Worth	924
Powell, T. O., Rising Star	500
Pemeta Oil Company, Fort Worth	4,541
Paraffine Oil Company, The Houston	14,627
Prescott-Phoenix Oil & Gas Co., Wichita Falls	1,771
Paull Oil Company, Graham	13,657
Panhandle Refining Company, Wichita Falls	171,044
Palmer Freddie Oil Co., Rockdale	150
Philp Bros., Beaumont	1,415
Producers, The Supply & Tool Co., Marietta, Ohio	353
Petroleum Investment Company, Fort Worth	4,334
Payne, F. G., et al, Wichita Falls	2,048
Pennok Oil Corporation, Tulsa, Okla.	23,083
Py-Tex Oil Co., Winchester, Ky.	4,098
Pickens & Lewis, Dallas	1,116
Powers Production Co., Houston	2,791
Prairie, The Oil & Gas Co., Independence, Kansas	89,304
Prairie, The Oil & Gas Co., Independence, Kansas	1,677,068
Pois, M., et al, Wichita Falls	5,380
Pois & Johnson, Wichita Falls	860
Pois, M., Trustee, Wichita Falls	373

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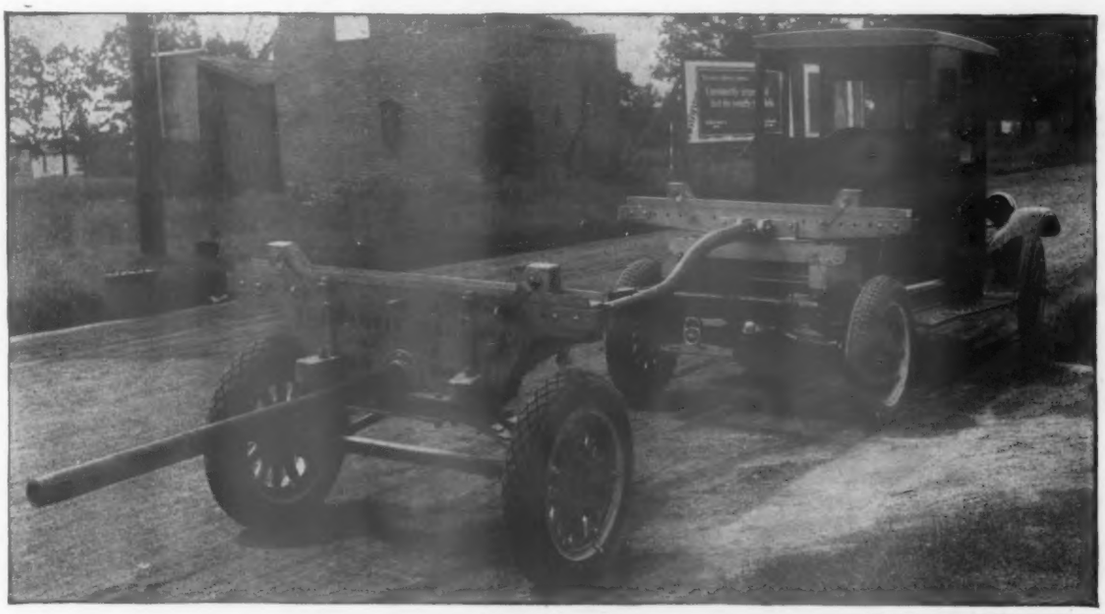

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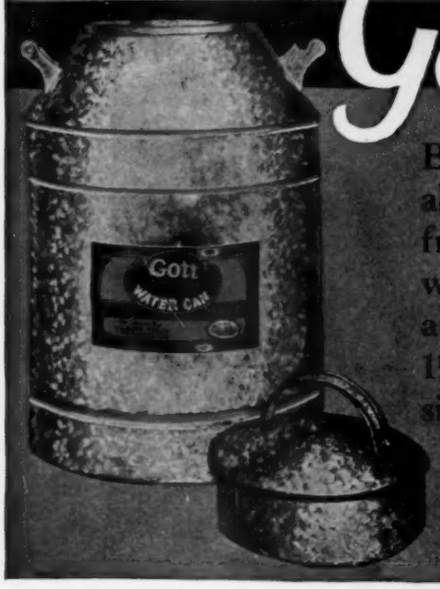

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WRITE OR WIRE FOR CATALOGUE AND FULL PARTICULARS
THE DIAMOND DRILL CARBON CO.
PARK ROW, NEW YORK, N.Y. CABLE ADDRESS, CREDOTAN, N.Y.

Name, Address—	Barrels
Pois, Fine & Schulz, Wichita Falls	1,679
Pecos Oil Company, Crane	357,842
Phillips Petroleum Company, Bartlesville, Okla.	1,884,085
Progressive Production Company, Kansas City, Mo.	2,627
Pitzer & West, Breckenridge	43,469
Paggi Bros. Oil Co., Beaumont	15,001
Paggi, Chas. & Co., Beaumont	2,336
Pace and Ward, Breckenridge	2,076
Perkins and Cullum, Wichita Falls	39,227
Perkins, J. J., Wichita Falls	3,548
Primrose Oil Co., Sour Lake	1,048
Poor Boy Oil Co., Rockdale	712
Phillips, J. R., Invader Drilling Co., Amarillo	17,527
Phillips, J. R., Amarillo	21,420
Phillips, J. R., Amarillo	684
Phillips, J. R., Amarillo	20,709
Pilkinton, F. L., Wichita Falls	2,406
Petroleum Producers Co., Wichita Falls	117,985
Producers Drilling Co., Wichita Falls	8,473
Pace, Geo. L., Wichita Falls	1,502
Prairie Lea Production Co., San Antonio	11,046
Phillips, W. G. & J. B. Milam, Chelsea, Okla.	92
P-M Drilling Co., et al, Chelsea, Okla.	323
Pennowa Oil & Gas Co., Skiatook, Okla.	16,555
Quinn, J. W., et al, Eastland	25,737
Quartet Oil Company, Tulsa, Okla.	9,389
Quincy Oil Co., Electra	146
Quakins Petroleum Co., The, Ranger	1,382
Ruwalt, E. J., Gainesville	1,894
Rosenberg, J., Tulsa, Okla.	111
Rosenberg, J., Trustee, Tulsa, Okla.	38
Red Hill Petroleum Corporation, Los Angeles, Calif	None
Reiter-Foster Oil Corp., Tulsa, Okla.	8,448
Riner & Bailey, Wichita Falls	31,845
Rayzor, J. P., Wichita Falls	120
Rowe, J. G., Wichita Falls	1,258
Ross & Slicker Oil Co., Cisco	986
Rhader & Carey, Wichita Falls	10,843
Ramsey, E. H., Rising Star	1,311
Ross, James F., Laredo	802
Ross, James F., Laredo	144
Ross-Segunda Oil Co., Laredo	1,086
Ross Amigos Oil Co., Laredo	12,648
Ross, James F., Laredo	886
Reinhart, M. J., Trustee, Oklahoma City, Okla.	636
Rowan, A. H., Trustee, Fort Worth	278
Ruby Oil Company, Minerva	310
Ross, C. E., Burkburnett	761
Ranell, The Oil Company, Oklahoma City, Okla.	7,176
Reclamation Company, The, Fort Worth	7,444
Robert Oil Corporation, Breckenridge	13,851
Roeser & Pendleton, Inc., Fort Worth	315,605
Rentex Oil Co., San Antonio	9,736
Rountree, White & Simpson, Rockdale	1,502
Rockdale Oil Co., Rockdale	79
Rio Bravo Oil Company, Houston	531,595
Ruthada Oil Co., Okla. City, Okla.	20,327
Rycade Oil Corporation, Houston	227,803
Rubsam & Hunter, Wichita Falls	2,610
Rio Grande Petroleum Corporation, Houston	4,553
Rolyate Production Co., Houston	7,307
Robinson, Arthur D., Dallas	10,821
Ruyle Farm & Oil Co., Wichita Falls	8,136
Rex-Tex Oil Co., Winchester, Ky.	4,098
Rochmill, Henry, Trustee, Fort Worth	2,330
Republic Production Co., Houston	1,150,583
Roxana Petroleum Corporation, St. Louis, Mo.	2,818,691
Red Bank Oil Co., Tulsa, Okla.	76,418
Rathke Oil Co., Wichita Falls	23,344
Robinson, O. D., Pittsburgh, Pa.	1,324
Ramming, R. W., Wichita Falls	7
Ramming, Staley & Ramming, Wichita Falls	787
Ramming, W. F., Wichita Falls	28
Ramming & Saunders, Wichita Falls	4,413
Rhodes & Highers, Breckenridge	5,807
Ray & Massie, Wichita Falls	15,137
Rex Petroleum Corporation, Orange	17,963
Rott, Rhodes, et al, Eastland	19,734
Root, C. M., Eastland	821
Root, Rhodes, et al, Eastland	19,734

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There is nowhere on earth where service means more than in the oil field. A fortune often hinges on getting the right tool at the right time.

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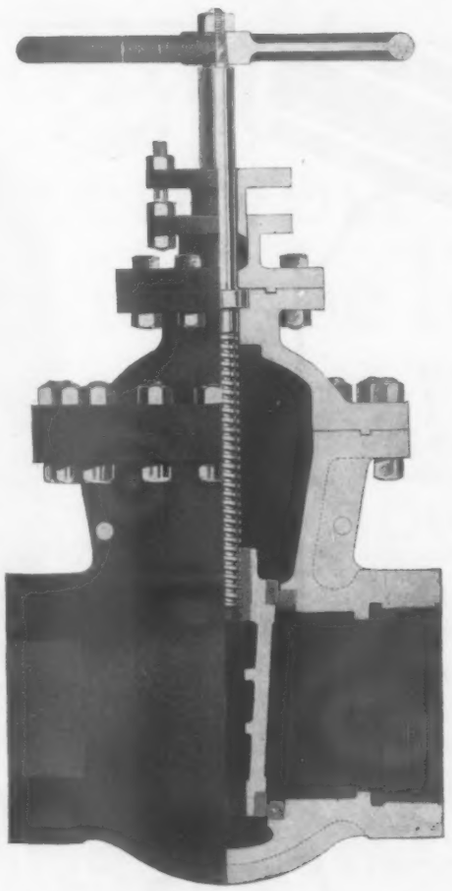
STEADILY, over a period of 17 years NORVELL - WILDER has grown until it is today one of the largest supply houses in the Southwest. This progress is the result of striving at all times to win the name of being thoroughly dependable, faithful, and honest in all dealings. That is why customers buy from NORVELL-WILDER year after year.



YOU ARE THE ONE TO GAIN by making NORVELL-WILDER your supply department. You can say to yourself after making such a decision, that your supply department will run efficiently.

YOU CAN SAVE TIME by having a NORVELL-WILDER representative sit in on your purchasing conferences. He is trained to answer your questions *at once;* to give you figures *at once* . . . . thus enabling you to estimate your costs at one sitting.

WHETHER you are planning on immediate or remote purchases—call in a NORVELL-WILDER representative. You will find him a well informed oil man.

Name, Address—	Barrels
Root, C. M., Eastland	5,669
Root, C. M., Eastland	64,104
Regna Oil Co., Saratoga	5,216
Ramsey & Decker (Dec. 31, 1927), Breckenridge	2,583
Russell & Wilson, Wichita Falls	8,113
Russell-Sanderson Oil Co., No. 3, Fort Worth	871
Rock Creek Oil Corporation, Amarillo	19,345
Rockwell, J. A. & Co., Warren, Pa.	2,356
Riggo & Oliphant, Graham	203
Ryan Consolidated Petroleum Corp., Bartlesville, Okla.	53,380
Riley, Henry, Receiver (J. T. Parks), Amarillo	9,524
Ramsel, W. T., Oil Co., Rockdale	2,556
Rowe, M. D., Wichita Falls	1,543
Red River Oil Co., Tulsa, Okla.	19,665
Rayzor, J. P., Wichita Falls	256
Ray Oil Corporation, Houston	1,332
Ray Featherston Oil Co., Inc., Wichita Falls	2,081
Staley, J. I. & Co., Wichita Falls	5,103
Shaw, T. G., Fort Worth	47,784
Shaw, Archie, Burkett	11,499
Shaw, Fox & Adams, Burkett	3,294
Swicegood, F. L., Trustee, Eastland	473
Sedwick Oil Company, Tulsa	17,138
Staggers Oil Company, Corsicana	265
St. Louis Oil & Dev. Co., Wichita Falls	640
Standard Oil Land & Leasing Co., Electra	335
Shoup, O. H., Jr. Colorado Springs, Colo.	4,984
Schaffner, E. N., et al, Cross Plains	2,403
Schoolfield, R. E., Wichita Falls	257
Somerset Oil Co., San Antonio	1,259
Shulman, Harry, et al, Breckenridge	3,258
Swicegood, F. L., Trustee (12-31-27), Eastland	373
Seabord Oil & Gas Company of Texas, Wichita Falls (12-31-27)	39,686
Stout Petroleum Co. (12-31-27), Brownwood	62
Sinclair Oil & Gas Company, Houston	123,283
Smith & Bynum, Amarillo	3,638
Smith, Mrs. James L., Amarillo	11,430
Schlicher Oil Co., Beaumont	971
Sircovich, A., and Mrs. Freman M. Thomas, Houston	856
Swanner, John L., Wichita Falls	2,681
Sindorf & Sindorf, Caddo	991
Stidham & Thrasher, Electra	310
Stresky, Joe & Gamble, Rockdale	668
Stout Petroleum Co., Brownwood	72
Staley, J. A., Wichita Falls	2,520
Simmons, T. K., Tulsa, Oklahoma	4,284
Saigh, N. A., San Antonio	1,752
Skinner, E. W., Oil Co., Saratoga	5,188
Star Drilling Co., Wichita Falls	6,433
Shemen Oil & Gas Co., Pittsburgh, Pa.	90
Southern Petroleum Exploration, Inc., Sistersville, W. Va.	6,494
Seybert Bros. & Barges, Moonings-port, La.	2,642
Somerset Crude Oil & Refining Co., Somerset	3,522
Smith, R. E., Houston	15,934
Schimmel Production Corp., Fort Worth	28,969
Steed, Paul P., Wichita Falls	3,965
Speed, C. D., Corsicana	203
Saratoga Oil Co., Wichita Falls	1,196
Supreme Oil Company, Orange	2,359
Schermerhorn Oil Co., Tulsa, Okla.	1,617
Sigler Oil Co., Inc., Wichita Falls	1,399
Stella Oil Co., Beaumont	14,487
Sessions, I. P., Rockdale	430
Somerset Oil Co., of Mass., Easthampton, Mass.	138
Southern Crude Oil Purchasing Co., Shreveport, La.	1,371,203
Southern Exploration Co., Houston	2,109
Sink, Joel, Corsicana	148
Sun-Burst Oil Co., The, Amarillo	7,971
Smith, McIntosh & Thomas, Cameron	2,060
Snider, C. W., Wichita Falls	1,701
Simms Oil Co., Dallas	1,194,676
Shappell Oil Co., Wichita Falls	46,611
Shattuck, R. H., Dallas	2,043
Shortzer Bros., Dewey, Okla.	15,019
Spring Creek Oil Co., Amarillo	11,215
Superior Oil Producing Co., Tulsa, Oklahoma	2,381
Sunny Jim Oil Co., Tulsa, Okla.	10,380
Swensondale Oil Co., Caddo	11,600
Sun Oil Company, Dallas	613,417
Summit Oil & Refing Co., Amarillo	11,021
Stoops, J. P., Ranger	345
Slick, T. B., et al, Oklahoma City, Okla.	8,485
Stamfli & Kell, Wichita Falls	153
Shaw Oil Co., Wichita Falls	35,930
Snowden & McSweeney Co., New York, N. Y.	51,118
Sinclair Oil & Gas Co., Tulsa, Okla.	147,787
Salado Oil Co., San Antonio	1,863
St. Albans, Edward, Laredo	2,781
Summerfield Oil Co., Tulsa, Okla.	320
St. Marys Oil & Gas Co., St. Marys, W. Va.	27,605
San Balt Petroleum Co., Kansas City, Mo.	674
Stull, R. O., Wichita Falls	18
Selby Oil & Gas Co., Tulsa, Okla.	31,865
States Oil Corporation, Eastland	42,794
Shasta Oil Co., Laredo	879
Scott & Walker, Wichita Falls	5,068
Shamrock Co., Inc., The, Wichita Falls	4,528
Stribling, J. C., Houtin No. 1 Well, Llano	2,490
Sheffield, Frank H., Houston	1,808
Sheldon, C. P., Electra	12,924
Stroube & Stroube, Corsicana	50,967
Smith, E. L., Oil Co., Inc., Mexia	223,221
Sullivan, M. J., Kansas City	397
Schaffner-Wilson, et al, Wichita Falls	1,461
Stovall, E. C., Graham	10,967
Scarborough, W. A., et al, Wichita Falls	948
Scarborough, W. A., Burkburnett	2,500
Skia-Tex Petroleum Co., Amarillo	58,216
Skelly Oil Co., Tulsa, Okla.	193,473
Sitrid, Sam & Morris, Tulsa, Okla.	130
Sheldon, W. J., Electra	3,185
Scott & Nance, Graham	1,486
Scott & Britton, Graham	161
Shasta Oil Co., Wichita Falls	1,535
Smith-Hanlon, Inc., Tulsa, Okla.	77
Staley, Wynne & Co., Wichita Falls	43,883
S. & W. Oil Company, Amarillo	23,036
Smith, M. L. V., Vernon	759

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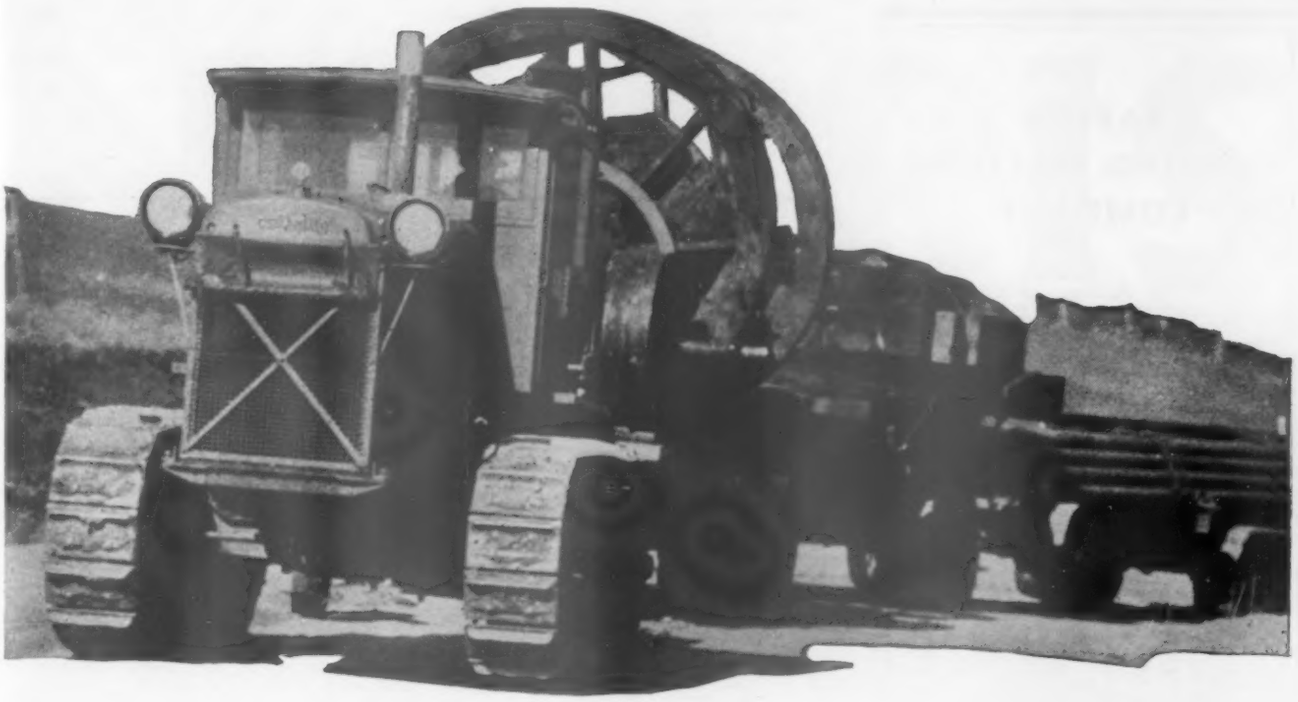

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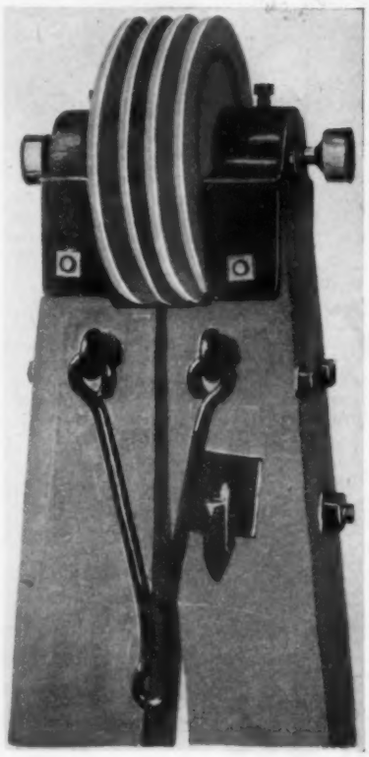
Wishes to Announce that the Safety and Eclipse special Pulling Machines (7x10x36 ft. A-Mast) size will be equipped with Double Crown Pulleys, fitted with 2-15/16 Phosfer Bronze Bushings.



The price to remain the same. Safety $375.00. Eclipse $350.00. F. O. B. Factory.

Either the complete Machine or the Stripped Derrick equipped as above.

For complete description write

SAFETY PULLING MACHINE COMPANY

INDEPENDENCE, KANSAS

P. O. BOX 525

Name, Address—	Barrels
Smith, M. L. V. (Dec. 31, 1927), Vernon	330
Sommer, M. E., Albany	301
Shuler Davies Co., Brownwood	2,625
Tripplehorn, J. W. & D. R., Fort Worth	2,376
Taylor-Sibley Syndicate, Dallas	1,979
Taylor-Link Oil Co., Houston	23,204
The Travelers Oil Co., Amarillo	21,761
Thaxton, W. H. (Estate)-Nannie S. Thaxton, Austin	398
Tripplehorn, J W. & D. R. (12-31-27), Fort Worth	2,676
Trimount Petroleum Co., Shreveport, La.	6,054
Tegler, F. E., San Antonio	99
Tyson Oil Co., Sour Lake	627
Trinity Townsite Co., Dallas	627
Tucker, G. A. (12-31-27), Arlington	831
Texas Petroleum Dev. Co., Cameron	6,183
Triangle Oil & Gas Co., Rockdale	1,975
Texas Consolidated Oil Co., San Francisco, Calif.	16,423
Texota Petroleum Co., Electra	480
Tower & McKanna, Inc., Wichita Falls	9,786
Tower & McKanna, Inc., (12-31-27) Wichita Falls	3,943
Tillman, J. W., Humble	330
Trinity Production Co., Wichita Falls	664
Two Republics Oil & Gas Co., Laredo	11,015
Timblin, W. E., Wichita Falls	135
Texas Unity Oil Co., Dallas	3,195
Triangle Oil Co., Wichita Falls	647
Texon Oil & Land Co., of Texas, Big Lake	425,467
Turman, L. C., Fort Worth	356,146
Texas Standard Oil Co., Houston	1,346
Thompson, J. E., Humble	597
Trans-Bay Oil Co., Galveston	90
The Texas Co., Houston	2,957,020
Texas Pacific Coal & Oil Co., Thurber	83,470
Texas Pacific Coal & Oil Co., Thurber	357,658
Tidwell, R. V., Tr. or Mgr., Graham	6,231
Tannehill, L. B., Albany	13,712
The Triangle Petroleum Co., Inc., Fort Worth	1,161
Teatsorth, L., et al, Eastland	3,755
Tidal Oil Co., Tulsa, Okla.	403,710
Tidal Osage Oil Co., Tulsa, Okla.	11,178
Texas Fidelity Oil Corporation, Louisville, Ky.	9,410
Tholl Oil Co., Beaumont	5,005
Theis Oil Co., Sour Lake	6,618
Terry, H. M., Sour Lake	8,825
Transcontinental Oil Co., Tulsa, Okla.	77,286
Transcontinental Oil Co., Tulsa, Okla.	713,504
Transcontinental Oil Co., Tulsa, Okla.	5,595
Teci Production Co., Breckenridge	3,110
Talley & Frick, Shreveport, La.	236
Tillery, L. J., Oil Co., Inc., Beaumont	10,019
Tucker & Langford, Inc., Wichita Falls	49,116
Tucker, W. B., Dallas	701
Tucker & Fox, Dallas	1,102
Thomasson & Co., E. M., Inc., Denver, Colorado	1,250
Tucker, Chas. J., Wichita Falls	4,666
Tidwell, H. L., Trustee, Graham	6,177
Underwood Drlg. Co., Wichita Falls	5,970
Underwood Drlg. Co., Wichita Falls	2,771
Underwood Drlg. Co., Wichita Falls	806
Unity Oil Co., Beaumont	11,950
Upham, The Gas Company of Texas, Wichita Falls	175
United Petroleum Co., Brownwood	130
Upland Oil Co., Amarillo	11,836
United Oil & Fuel Co., Sour Lake	977
United Producers Co., Wichita Falls	2,350
Unice & Carpenter, Houston	8,049
Union Production Co., Inc., Rockdale	6,882
Vacuum Oil Co., Houston	9,123
Vergate Oil Co., Tulsa, Okla.	9,572
Val Verde Oil Co., Del Rio	2,073
Van Cleave Trust, Baltimore, Md.	807
Virginia Oil Assn., Inc., Fort Worth	3,411
Van Wormer, S. E., Wichita Falls	1,107
Wichita Petroleum Co., Tulsa	2,337
West, J. F., Cisco	507
Weiler, J. G., et al, Cross Plains	1,832
Wo-Mac Oil Company of Wichita Falls, Wichita Falls	2,289
Wilson Drilling Company, (Comet) Wichita Falls	4,956
Wilson Drlg. Co., Wichita Falls	3,420
Wilson Drlg. Co., Wichita Falls	2,261
Watkins, J. A., Wichita Falls	320
West Production Co., Houston	9,308
Western Oil Corporation of Texas, Wichita Falls	23,864
Whitman, G. W., Wichita Falls	545
Waid, C. A., Cisco	1,239
Webb, J. R. & J. H. Bryant (12-31-27), Corsicana	377
Walker, Hall (12-31-27), Ranger	850
Watson, M. B., Fort Worth	700
Wills Oil Co., Rockdale	2,380
Waggoner Refining Co., Inc., Electra	36,087
Wakefield, J. E., et al, Cross Plains	658
Weed-Gayle Oil Co., Beaumont	93,733
Webb Oil Co., Humble	4,663
Webb, J. R. & J. H. Bryant, Corsicana	531
Woody, W. C., Wichita Falls	1,607
Witcher, W. C. (Witcher & Michel), Wichita Falls	218
Wichita Production Co., Wichita Falls	17,208
Western Oil Sales Corporation, Wichita Falls	8,901
Wampem Oil Corporation, Dallas	2,545
Woodburn Oil Corporation, Dallas	5,630
Witcher, Annie L., Guardian, Wichita Falls	2,589
Woods & Bennett, Humble	7,387
Wheelock & Collins, Corsicana	24,732
West, J. H., Cisco	2,901
Westervelt-Noble, et al., Oklahoma City, Okla.	3,753
Wilson Drilling Co., Wichita Falls	3,958
Westheimer & Daube, Ardmore, Okla.	1,830
Williams, Burt, Wichita Falls	1,465
White & Duncan, Wichita Falls	4,727
Walker, B. S., Breckenridge	1,288
Weister, E. P., Tulsa, Okla.	2,476
Witherspoon Oil Co., San Antonio	36,645
Wilson-Broach Co., The, Beaumont	11,345
Wentz, L. H., Ponca City, Okla.	47,674
Weaver & Pois, Wichita Falls	4,205
Wilcox, H. F., Oil & Gas Co. of Texas, Tulsa, Okla.	109,891
Why Not Oil Co., Mexia	11,841
World Oil Co., Inc., Fort Worth	2,524
White Eagle Oil & Refining Co., Kansas City, Mo.	73,791
Weldon Oil Co., Saratoga	8,305
Woodward & Lee, Houston	12,129
Wear, G. F., et al, Brownwood	166
Wilson, Lee, et al, Wichita Falls	15,732
Windham & Pilkenton, Burkburnett	2,707
Watts & Hale, Houston	1,822
Whaley Mineral & Realty Trust, Fort Worth	3,062
Wallace, Dr. Chas. William, et ux, Wichita Falls	30,641
Whitehill Oil Corp., The, Tulsa	5,701
Waid, C. A., Cisco	1,274
Wahpoo Oil Co., Rockdale	2,157
Wilkins, L. A., Burkburnett	3,128
Wood, Benton, Lesh & McCall, Nocona	11,000
Ward Oil Corporation, Ardmore, Okla.	3,327
Weiler, H. J., Wichita Falls	363
Wolfe, A. T. & Son, Wichita Falls	5,293
Wilson Drlg. Co., Wichita Falls	274
Wise & Jackson, Sapulpa, Okla.	3,596
Yount-Lee Oil Co., Beaumont	2,754,357
Young Brothers & Alexander, Inc., Fort Worth	15,216
Zadie Belle Oil Co., Fort Worth	440
Baird Oil Co., Putnam	356
Bradstreet, L. G., Fort Worth	17,122
Nunn-Stubblefield Oil Co., Amarillo (10-1-27 to 3-31-28)	10,964

Big Price for Lease

Wichita, Kan.—Elmer Corn, Kansas operator, and W. W. Pickard, New York attorney, paid what is considered a record price for a California lease May 15, when they gave Harry Patton, another Kansas operator, a bonus of $300,000 cash for seven-eighths of one acre in the Signal Hill field of California.

The small tract has two wells with a combined daily yield of approximately 500 barrels. Reports are that a third location will be drilled by the buyers.

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Look for the gray Bull Plugs and Swedge Nipples bearing the *Norris Quality Mark,* they are your guarantee of inherent quality. Products of the World's Largest Manufacturer of Swedge Nipples and Bull Plugs, in use by companies in fields throughout the world. Your dollar earns more when you specify NORRIS, extra care in manufacture assures full one hundred cents value for every dollar charged.

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BOB WOODS, Webb City, Okla.
CHALKY FISHER, Seminole, Okla.
W. F. KNODE, Tonkawa, Okla.
GEORGE EBA, Okmulgee, Okla.
ROY RICHARDSON, Breckenridge, Texas
A. J. FROGEE, Breckenridge, Texas
H. N. ROBINSON, Coleman, Texas
ORVILLE WINEMAN, Borger, Texas
GARRY YOUNG, Colorado and Wink, Texas
PETE BURDETTE, Crane, Texas
WALTER JOHNSTON, Owensboro, Ky.
CLYDE SMITH, Glasgow, Ky.
FRANK LESH, Casper, Wyo.
L. A. DUNCAN, Casper, Wyoming
W. H. RAMSEY, Shelby, Mont.

THE EASTERN TORPEDO OF OHIO CO.

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WEST TEXAS

County Maps
Combination Maps

Descriptions and prices on application.

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Wichita Falls, Texas.

C. W. WEBSTER

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⅜ *Mineral Deeds*
ROYALTIES

15 Years in Texas
Reference: Mercantile Agencies

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FORT WORTH, TEXAS

PHILLIP MAVERICK
PETROLEUM GEOLOGIST
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SAN ANGELO, TEXAS

Oil Production in India Steadily Declining

Washington, D. C.—Petroleum production of British India is steadily declining, according to a report to the Department of Commerce from the American vice consul at Calcutta. Since 1921 production has declined from 305,500,000 imperial gallons to 280,369,326 imperial gallons in 1926, and it is generally believed throughout the country that the continuous decreases are evidence that decline has set in and, with possible interruptions, is likely to continue steadily during the present generation unless new fields of importance are discovered.

The bulk of the petroleum production of British India is in Burma, and the bulk of the Burmese production is from the Yenangyaung fields, the declining output of which accounts for the decrease in the total figures. In 1927 Burma produced 245,407,563 imperial gallons, as compared with 250,040,471 gallons in 1926 and 262,828,930 gallons in 1925.

Kern County Leasing

Bakersfield, Calif.—Several widely scattered parcels of land have been leased in Kern County during the past week by large operating companies. Near Fruitvale, several small tracts totaling about 600 acres have been acquired by the Marland and Shell. The latter also acquired acreage in the Delano, Greenfield, and Round Mountain areas. The large companies are not concentrating on any one section, being content to lease promising acreage over a widely scattered district. The discovery of oil in the bed of the San Joaquin valley has caused the leasing of thousands of acres of land formerly frowned upon by even the most optimistic operators. Particularly has this been true of a strip lying along the east side of the valley.

The Rollway Bearing Company, Inc., Syracuse, N. Y., announces the appointment of Alfred E. Munch, Jr., as representative in the Chicago-Milwaukee district, with headquarters at 544 Railway Exchange Building, Chicago.

Maintenance Engineering Corporation, Houston, announces a distributing connection with Neilan, Schumacher and Company, of Los Angeles, California, manufacturers of regulating devices of ball-bearing construction. A large stock of Neilan Regulating Equipment will be maintained at the Houston warehouse to meet any urgent requirements. This stock at present will consist of reducing, back pressure and vacuum regulators, flow and liquid level controllers, casing head regulators, pump governors, steam reducing valves, balanced lever valves and gas fuel boiler governors.

THE FT. WORTH LABORATORIES

Field Gas Testing. Analysis of oil field brines, gas minerals and oil
Sell Thermometers, Hydrometers and Laboratory Glassware

F. B. Porter, B. S., Ch. E., Pres.
R. H. Fash, B. S., Vice-President
528½ Monroe St. Ft. Worth, Tex.

ADDRESS WANTED

Wanted, the address of Roy Watkins, driller. Worked at Desdemona and Mirando City, Texas, and later at Webb City, Oklahoma. About 35 or 40 years old

Box 810, c/o The OIL WEEKLY

FOR SALE, BARGAIN

2 Bruce Mac Beth Natural Gas Engines, 40 H. P. and 60 H. P.

CARNATION MILK PRODUCTS CO.
Oconomowoc, Wisconsin

FULLERS EARTH MINE

For Sale or Lease. Highest grade with six large dry floors at R. R. in Fayette County, Texas. Address

J. C. MELCHER
R. D. 4, La Grange, Texas

PATENTS

Patents Obtained and Trade Marks and Copyrights Registered

HARDWAY & CATHEY
428-29-30 Bankers Mortgage Bldg
Phone Preston 4790 Houston, Texas

EDWIN B. HOPKINS
CONSULTING GEOLOGIST
25 Broadway
NEW YORK

PATENTS
Patents Obtained, Trade Marks, Patent Causes
JESSE R. STONE
Formerly Assistant Examiner United States Patent Office
Andrews, Streetman, Logue & Mobley
12th Floor Union N. Bk., Houston, Texas

Maurice Hirsch & Ben J. Brown
ATTORNEYS AT LAW
601-2-3 Goggan Bldg.
HOUSTON, TEXAS
Specializing in Oil Law and Land Law

JOHN F. WEINZIERL
CONSULTING GEOLOGIST
ADVISOR ON GEOPHYSICAL INSTRUMENTS
619 Petroleum Bldg., Houston, Texas

"They're Dependable"

J. A. Rutherford, engineer, Sinclair Pipe Line Co., Stroud, Okla., in speaking of these American Gauges says: "They're dependable."

The engineer prefers American Gauges and Thermometers because he knows he can rely upon their long service and constant accuracy.

Write for the following:

Gauge Catalog A-25
Recording Gauge Catalog R-25
Thermometer Catalog F-25
Dial Thermometer Catalog G-25
Recording Thermometer Catalog H-25
Temperature Controller Catalog R-25
Steam Trap Catalog S-25
Tachometer Catalog J-25

AMERICAN INSTRUMENTS

American Schaeffer & Budenberg Corporation

338 Berry St., Brooklyn, N. Y.

BRANCHES IN PRINCIPAL CITIES

Makers of American Industrial Instruments since 1851

BARSCO PRODUCTS

—For Oil and Gas Well Drilling

Casing

Shoes

BARSCO Casing Shoes are *punched*, not welded, from the finest quality of *forged steel* having a metal content of carbon 50 to 60 point and tensile strength of 90,000 to 110,000 pounds per square inch. This gives you some idea of the superior quality that is built into Barsco Products—and one of the many reasons why BARSCO is a standard name used by those who want the best.

Size Pipe, Inches	California Pattern Length, Inches	*Texas Pattern Length, Inches	Weight, Pounds
4	16	15	20
4¼	16	15	20
4½	16	15	20
4¾	16	15	25
4⅞	16	15	25
5-3/16	16	15	25
6	16	15	50
6¼	16	15	50
6⅝	16	15	35
8¼	16	15	65
10	16	15	85
12¼	16	15	135
14	16	15	150
15¼	16	15	170
16	16	15	165
18	16	15	250
20	16	15	280

*Texas Pattern Casing Shoes are not drilled for rivets unless specified.

Intermediate sizes, also sizes larger or smaller than listed, can be furnished. Note:—Smallest inside measurement is the same as inside diameter of pipe or casing on which shoes are to be used. In ordering, give size, weight, pitch of thread and make of casing on which shoe is to be used and also size and weight of casing through which shoe is to pass.

BARSCO line of casing shoes includes "Bloom Pattern"—"Regular Pattern"—"Rotary Sawtooth"—"Baker Pattern."
There's a BARSCO Casing Shoe for every requirement.

BARTLESVILLE SUPPLY CO. of Missouri

3400 MAURY AVENUE—ST. LOUIS, MISSOURI
Export Office: 150 Broadway, New York City
Oklahoma Warehouse:
Tulsa—J. H. Kountz, 218 East Brady St.
Texas Warehouse:
Amarillo—J. G. Lockard—504 Western Ave.
Stock Carried by Dealers

—Write for Complete Catalog

and now for the benefit of the rapidly increasing users of LE BUS TOOLS

We announce the sale of all LE BUS PRODUCTS thru the supply companies only

OUR factory representatives will co-operate with the user and with the supply houses in order to effect a most perfect service for LEBUS TOOLS.

This new supply company-plus-representative service will greatly assist the user in getting the full benefit and efficiency of LEBUS products. Our factory representatives are all trained in the servicing of LEBUS tools and will be at the service of the user as well as the supply house at any time.

FACTORY REPRESENTATIVES

P. F. (DOC) MURRAY
California Representative, Montebello, California

PAUL REID
Gulf Coast Representative, Houston, Texas

T. H. BROWN
Pyote, Texas

T. E. (JACK) HALE
North Texas Representative, Wichita Falls, Texas

LE BUS PATENTED OIL WELL TOOLS

LeBUS Automatic Cathead
LeBUS Slipsocket Overshot
LeBUS Eureka Tongs
LeBUS Breakdown Post
LeBUS Bottom Hole Plug
LeBUS Outside Drill Pipe Cutter
LeBUS Inside Pipe or Casing Cutter

AT YOUR DEALERS

MANUFACTURED BY THE

LE BUS ROTARY TOOL WORKS

ELECTRA, TEXAS

EXPORT AGENTS: Acme Well & Supply Co., New York.

NEW EQUIPMENT, CATALOGS, BULLETINS, BOOKS

Yellow Jack-It Tire Inflator Installed

Automatic Tire Inflator

YELLOW JACK-IT MANUFACTURING COMPANY

The closeness with which balloon tire pressures must be maintained have created a demand for some kind of a device to keep this pressure constant. Such a device is announced by the Yellow Jack-It Manufacturing Company, 211-225 N. Green Street, Chicago.

The apparatus is called the Automatic Tire Inflator. One inflator is installed in each wheel of the automobile. The valves are set for the pressure required and when the pressure drops below the pre-determined point, the inflators replace the lost air as the wheel moves. A few miles of driving will bring the tire back to its normal pressure.

The inflators make an inconspicuous permanent attachment to the wheel. No more than the pre-determined amount of air will enter the tire since the valve is so set that surplus air passes out through the exhaust.

More information will be supplied by the company, on request.

Bit Finishing Machine

SMITH MANUFACTURING COMPANY

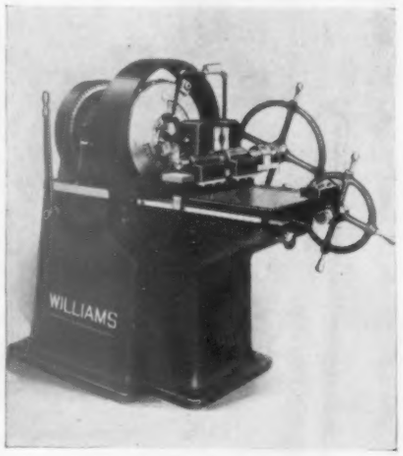
H. C. Smith Manufacturing Company, Whittier, California, announces the new Smith Precision grinder, which, it is claimed, grinds any size core bit to within a few thousandths of an inch in toleration. The machine is a result of the need for some accurate and fast method of finishing core bits to size.

In order to grind the various types of metal such as Borium, Stoodite, Stellite, Dymonette, etc., definite wheels and exact revolution speeds have been established.

Figure 1 shows the grinder finishing the outside diameter of the core bit cutter blades. On the cutter blades a clearance angle of eight degrees is given in order to insure proper cutting angle and adequate chip clearance. In the picture the grinding wheel is shown taking one-sixteenth of an inch cut across the cutter blades, and traversing the length of the cut every five seconds. The machine has automatic tranverse feed.

In figure 2 the machine is shown grinding the interior of the core bit. Trouble has been experienced by oil operators as a result of the core balling up in the mouth of the bit. A tapered internal grinding wheel on the new machine grinds the mouth of the bit to taper larger until it reaches the lower joint of the inner barrel.

Further information regarding the machine may be had from the company.



Williams Pipe Threader

Williams Pipe Threader

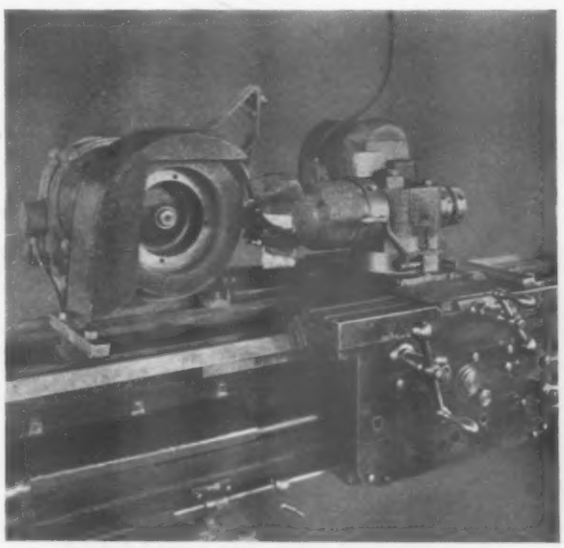
THE WILLIAMS TOOL CORPORATION

The Williams Tool Corporation, Erie, Pennsylvania, is putting on the market a new pipe and nipple threader for bent pipe and nipples, called the "Rapid Rotary," recommended for use in field shops.

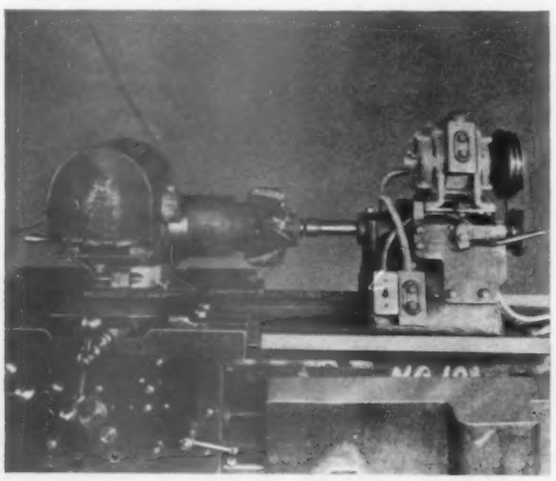
The machine, especially designed for increasing threading production on bent pipe, has a range of spindle speeds that gives an average cutting speed of 19 surface feet per minute.

As the threads are being cut, the machine reams the burr from the pipe.

A cam and lever device releases the dies from the pipe automatically, as soon as the thread is finished. This cam and lever trip is controlled by one handle at the front of the machine, and greatly



Machine designed by H. C. Smith Company, for accurately finishing core bits. The machine is shown finishing the outside diameter of the core bit cutter blades.

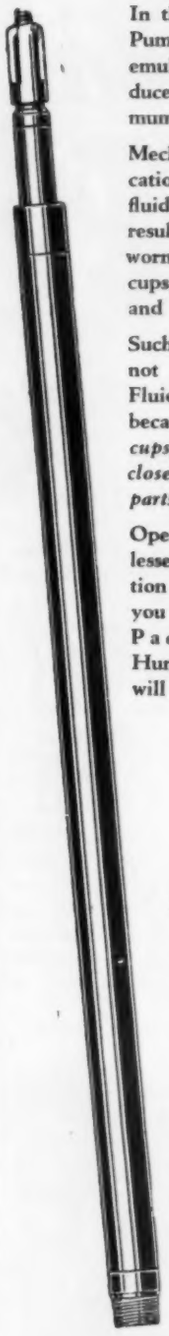


H. C. Smith core finishing machine shown grinding the interior of a core bit.

No. 6 of a series on the

FLUID PACKED PUMP

FPP



In the Fluid Packed Pump — mechanical emulsification is reduced to a minimum.

Mechanical emulsification is caused by fluid slippage, which results from badly worn plungers and cups, damaged liners and leaky valves.

Such slippage does not occur in the Fluid Packed Pump because it has *no cups, no packing, no close-fitting wearing parts.*

Operating costs are lessened and production increased when you use the Fluid Packed Pump — Hundreds of users will tell you this.

West Texas Representative:
R. W. (Bill) Harr
P. O. Box 45
McCamey, Texas

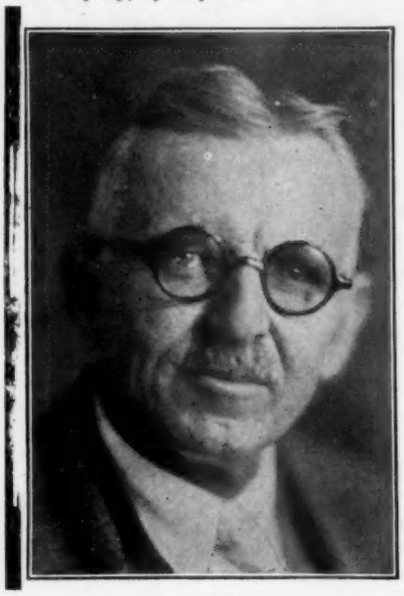
Fluid Packed Pumps are manufactured *only* by the Fluid Packed Pump Company of Los Nietos, California, and distributed in Texas exclusively by the

ROBERT J. MILLER COMPANY
HOUSTON TEXAS

facilitates and speeds up the chucking and releasing of pipe.

Four sets of dies cover the entire range of the machine. The outfit threads one to four-inch pipe in its regular range and can also be used to good advantage on one-half and three-quarter-inch pipe.

Additional information is available from the company, by request.



Max Huber

Jensen Brothers Manufacturing Company, Nowata and Tulsa, Oklahoma, announces that Max Huber will represent it in Arkansas, Louisiana, and East Texas. Mr. Huber will maintain headquarters at Shreveport. He has had long and varied experience in the oil fields and is well qualified to present the Jensen line of pumping jacks and pumping units.

The Toledo Pipe Threading Machine Company, Toledo, Ohio, has recently published a new catalog describing all Toledo pipe threading devices, pipe cutters, pipe vises, work benches, boring tools, power drives and power pipe machines.

The Toledo brand of tools is well known in oil field machine shops, and shop foremen will find the new catalog a ready reference on all these products.

Copies may be obtained by asking for catalog J. A pocket size edition of the same catalog is also available.

C. D. Erlewine Goes to Scottdale, Pennsylvania

Marion, Indiana.—Marion Machine, Foundry and Supply Company announces the removal of C. D. Erlewine, former southwestern district manager, with headquarters in Dallas, Texas, to Scottdale, Pennsylvania. At Scottdale, Mr. Erlewine will have charge of a district office covering the Eastern territory.

Mr. Erlewine opened the company's first store at Nowata, Oklahoma, in 1911. Until January, 1922, he had charge of Northern Oklahoma and Kansas territory. At that time he moved to Houston, where he was in charge of the Southwestern territory, embracing Texas, Louisiana and Arkansas.

The district office at Scottdale will be located at the Scottdale plant. The Eastern territory covers the United States east of Columbus, Ohio.

Cecil C. Chamberlin will take Mr. Erlewine's place in Dallas and will have charge of Marion sales in the Mid-Continent. Both Mr. Erlewine and Mr. Chamberlin began work with the Marion Machine, Foundry and Supply Company in 1909.

The Wagner Electric Corporation announces that E. D. Pike, heretofore in charge of Wagner Electric Pacific Coast service operation, is now manager of the San Francisco branch sales office. This promotion is the culmination of 26 years of service with the Wagner Electric Corporation. Immediately upon graduating in 1902 from Washington University, located in St. Louis, E. D. Pike entered the employ of the Wagner Electric Corporation, then known as the Wagner Electric Manufacturing Company. After serving an apprenticeship in the testing department he was sent to the company's New York office in 1904 to serve as a service man. Two years later he was transferred to Philadelphia as a salesman, only to be transferred again within two years to the St. Louis office as factory sales correspondent. In 1911 Mr. Pike was again transferred to the company's New York office, with title as office manager. Five years later he was transferred to the Pacific Coast, in charge of Pacific Coast service operation, with San Francisco as headquarters.

655 Rooms and every Bedroom with Private Bath
Rates, $2.50 Upward

THE NEIL HOUSE

In Columbus—

A hotel where there is the happy combination of excellent food and courteous service.

COLUMBUS, OHIO

S. High St. Opposite the Capitol

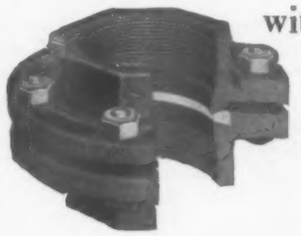
Make pipe joints *leak-proof*

with Rhode Island

"RIBBED"

UNIONS

3-part Flange



You get tighter joints because R. I. RIBBED Unions are more rigid. They are more rigid because the metal in the flanges is distributed in two heavy ribs, placed edgewise to the strain of the bolts. A malleable iron union, iron to brass seat, no gasket needed. Tapped to take varying lengths of thread found on different thicknesses of pipe. Sizes 2″ to 8″.

We also manufacture a complete line of lip unions, sizes: ⅛″ to 4″

At your dealer, or write us for sample.

Rhode Island Fittings Co.

Makers of 2-part and 3-part Flange Unions

PROVIDENCE, R. I., U. S. A.

Agent: C. F. Adams, Fort Worth, Texas

ASCO STEEL

STANDS SUPREME

Every step in the production of Asco Steel is watched closely. From the selection of the raw materials to the finished product, the first thought always is to produce a steel that will give the best results to the makers of Oil Well Tools. Can we help you to produce better tools?

DISTRICT OFFICES:

503 Phil Tower Bldg., Tulsa, Okla.

541 McCormick Bldg., Chicago, Ill.

THE ANDREWS STEEL CO

NEWPORT KENTUCKY

,,, If you Really Want to Reduce Costs ,,,

here is

A Guaranteed Way to Do It

Let us look at this proposition fair and open-mindedly. Here is an improvement which in actual service of companies you know has outlasted three, five and up to thirty-six balls and seats. It has saved $500 a year for a single company whose name we will give on request; served three years in a well that once required change every month. No producer has yet ordered who did not re-order.

In addition to this, the No-Co-Ro Drop and Seat is covered by a definite and clearly worded guarantee—a 50% reduction in pulling costs or money back.

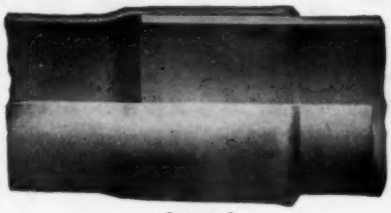
With such a saving guaranteed and a 70% to 90% saving possible, is it good business to delay a trial?

Order from Robinson or direct from Fort Worth warehouse.

NORRIS BROTHERS, Inc.

Robinson, Illinois Fort Worth, Texas

"ASTCO"



Patented

LEAK PROOF JOINTS

You'll never have leaky joints to contend with if you standardize on "Astco" Slip-Joint Surface Casing.

"Astco" Seamless Steel Slip-Joint Surface Casing is extra strong—no metal is removed by threading—and the joints, properly welded, are even stronger. Holes through the center of the joint provide added rigidity and speed up welding time.

There are no weak points in "Astco" Seamless Slip-Joint Surface Casing. Depend on it for safety, strength and long life.

Details are contained in a special "Astco" bulletin. Send for it.

American Seamless Tube Corporation

1211 Neils Esperson Bldg., Houston, Texas
535 Fifth Ave., New York City
Petroleum Securities Bldg., Los Angeles, Calif.

STRENGTH RESISTANCE DURABILITY

Trade Mark Reg.

SQUEAKS FROM THE BULL WHEEL

Walter found his mamma talking to a very stout woman.

"Walter," said his mother, "this is your great-aunt."

"Yes," said Walter, gazing at her ample proportions, "she looks it!"

A Human Balance Sheet

Last week a brokerage house received a letter from an applicant for a vacant cashier's job which took the form of the following balance sheet:

ASSETS: A wife and three children, a home in the country without a mortgage, $2000 cash in savings bank, $3200 Libertys, $4000 other securities, $20,000 insurance, member of the local Protestant Episcopal church, a good temper, habit of getting up early, good health, age 42 and have never been in court for anything.

LIABILITIES: Lost my last job for taking a certain stand on too much efficiency when an efficiency man was brought into our midst, believe strongly in the human equation in business; rather self-opinionated; and spend a bit too much on clothes.

He got the job.—Exchange.

The tourist rushed into the country store: "I wanna quart of oil, some gas, a couple spark plugs, a timer, a five-gallon kerosene can and four pie tins."

"All righty," replied the enterprising clerk, and you can assemble 'er in the back room if ya wanta."

"Papa, what is a low-brow?"

"A low-brow, my son, is a person who likes the funny papers, snappy stories, girl shows and the like and doesn't mind saying so."

"And what's a high-brow, papa?"

"A high-brow, my son, is a low-brow who won't admit it."

"What's all the crowd up there holding up traffic?"

"There's been a smash-up."

"Anybody killed?"

"Not yet."

"Did it rain much on your fishing trip?"

"Rain! Why, man, it rained so hard the fish swam right up out of the water and into the boats."

"When a tooth has been extracted, why does the hole feel so large to one's tongue?"

"It must be the tongue's natural tendency to exaggerate, madam."

Darling, I love you. Will you marry me and become my income tax rebate?

Yes, my love. And we'll have a lot of little exemptions.

"I want a tooth out, an' I don't want gas, 'cause I'm in a hurry."

"That's a brave boy! Which tooth is it?"

"Show the man your tooth, Jimmie."

Bandit (to bank teller): And get a move on you! Don't you know I can only park my car out there for 15 minutes?

CAN YOU DELIVER!

A lion met a tiger
As they drank beside a pool;
Said the tiger: "Please inform me
Why you're roaring like a fool?"
"That's not foolish," said the lion,
With a twinkle in his eyes,
"For I am king of beasts,
Because I advertise."
A rabbit heard him talking
And ran home like a streak,
He thought he'd try the lion's plan,
But his roar was but a squeak.
A fox came to investigate;
Had luncheon in the woods—
The moral—when you advertise
Be sure you've got the goods.—Michigan Bulletin.

A sturdy son of old Erin had been having a dispute with his wife. He had taken refuge under the bed. As she stood on guard with a stick in her hand, he called lustily from his retreat:

"Ye can lam me and ye can bate me, but ye cannot break my manly spirit. I'll not come out."

"Every time I kiss you it makes a better man of me."

"Well, you don't have to try to get to heaven tonight."

A colored man went to his pastor and handed him a letter to the Lord, which ran: "Please send dis poor darkey $50 right away." The pastor, a kind-hearted man, called together several of his friends and said: "This poor fellow has so much faith in the Lord that he expects Him to send the $50 right away. We shouldn't let him be disappointed. Let's make a collection for him." This was done and $42 was contributed, which sum was sent to the ingenious petitioner.

Next day the colored man handed the parson another letter. This one ran: "Dear Lord: De nex' time You send dis darkey money, don't send it through no parson—send it to me direct."—Boston Transcript.

Farmer Jenkins made his way into the village post office that also was the general store.

"Anything for me?" he inquired of the postmaster. The other raked over a few parcels and letters, but found nothing.

"Don't see nothing," he said. "Did you expect something?"

"Yes,' answered the farmer. "I was expecting a card from Aunt Jenny, tellin' me when she's comin'."

"Hannah," called the postmaster to his wife, "seen a card from Mr. Jenkins' Aunt Jenny?"

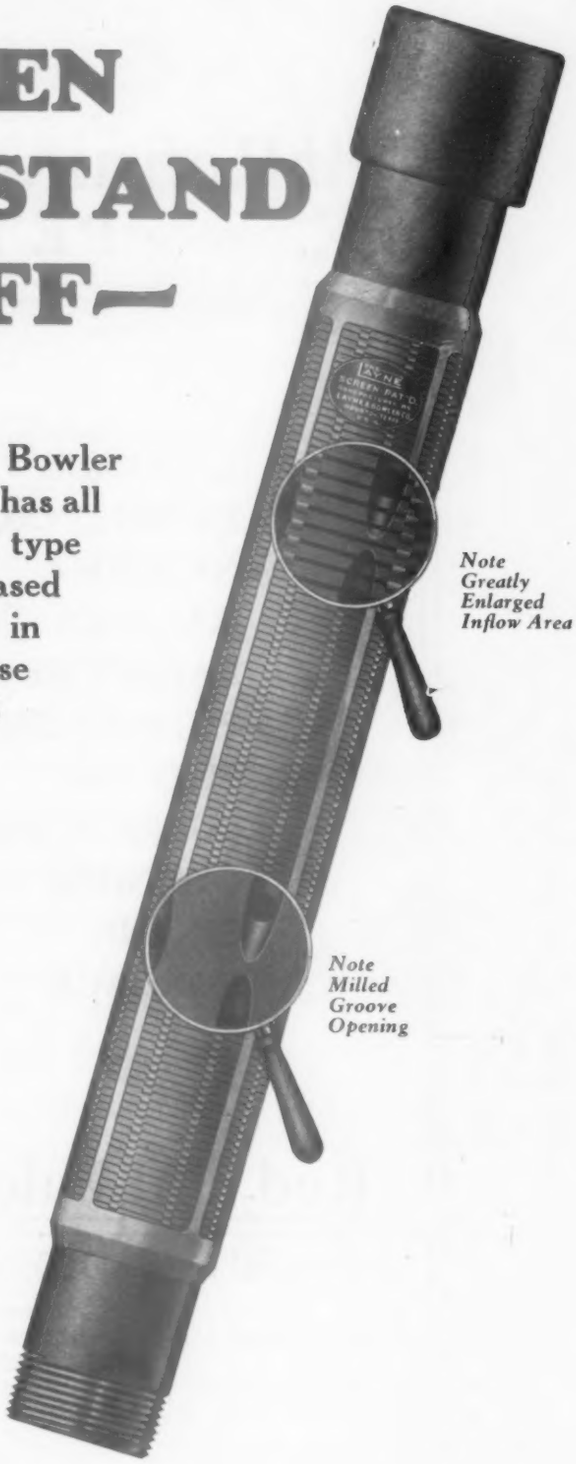
"Yes," came the prompt answer. "She's coming down Tuesday."

A SCREEN THAT CAN STAND THE GAFF—

The new type Layne & Bowler "Milled Groove" Screen has all the strength of the old type screen. Yet, the increased inlet area has proven in many instances to increase production from 33 1/3 per cent to 50 per cent.

One producer's increased production fully paid for all costs in making the change within ten days.

Write or Wire for Complete Information



Note Greatly Enlarged Inflow Area

Note Milled Groove Opening

The Layne & Bowler Co.

HOUSTON, TEXAS

THE LAYNE-NEW YORK CO.
30 Church St., New York

The LAYNE & BOWLER CORP.
Los Angeles, Calif.

VICKERS, LIMITED
London, England

Say you saw it in The OIL WEEKLY

Gulf Refining Company

OKLAHOMA
TEXAS
LOUISIANA

Refiners of PETROLEUM

GASOLINE
REFINED OIL
NAPHTHA
GAS OILS
PARAFFINE WAX
PETROLEUM COKE
FUEL OIL
LUBRICATING OILS
CYLINDER
ENGINE
CORDAGE

Red and Pale Paraffine Oils

General Sales Offices: PITTSBURGH, PA.

District Sales Offices:
NEW YORK, HOUSTON, ATLANTA, BOSTON, NEW ORLEANS, PHILADELPHIA, LOUISVILLE

Ocean Terminals:

Boston (Beverly), Mass.
Providence, R. I.
New York Harbor (Bayonne, N.J.)
Jacksonville, Fla.
Port Tampa, Fla.
Mobile (Magazine Point, Ala.)
Philadelphia (Girard Point, Pa.)
Charleston, S. C.
Savannah, Ga.
New Orleans (Gretna, La.)
Port Arthur, Texas
Galveston, Texas

ELECTRIC POWER
FOR PIPE LINE PUMPING

In one year in the Southwest area electric power has taken the lead.

Electric pipe line pumping stations, May, 1927

NONE

Electric pipe line pumping stations, May, 1928

44

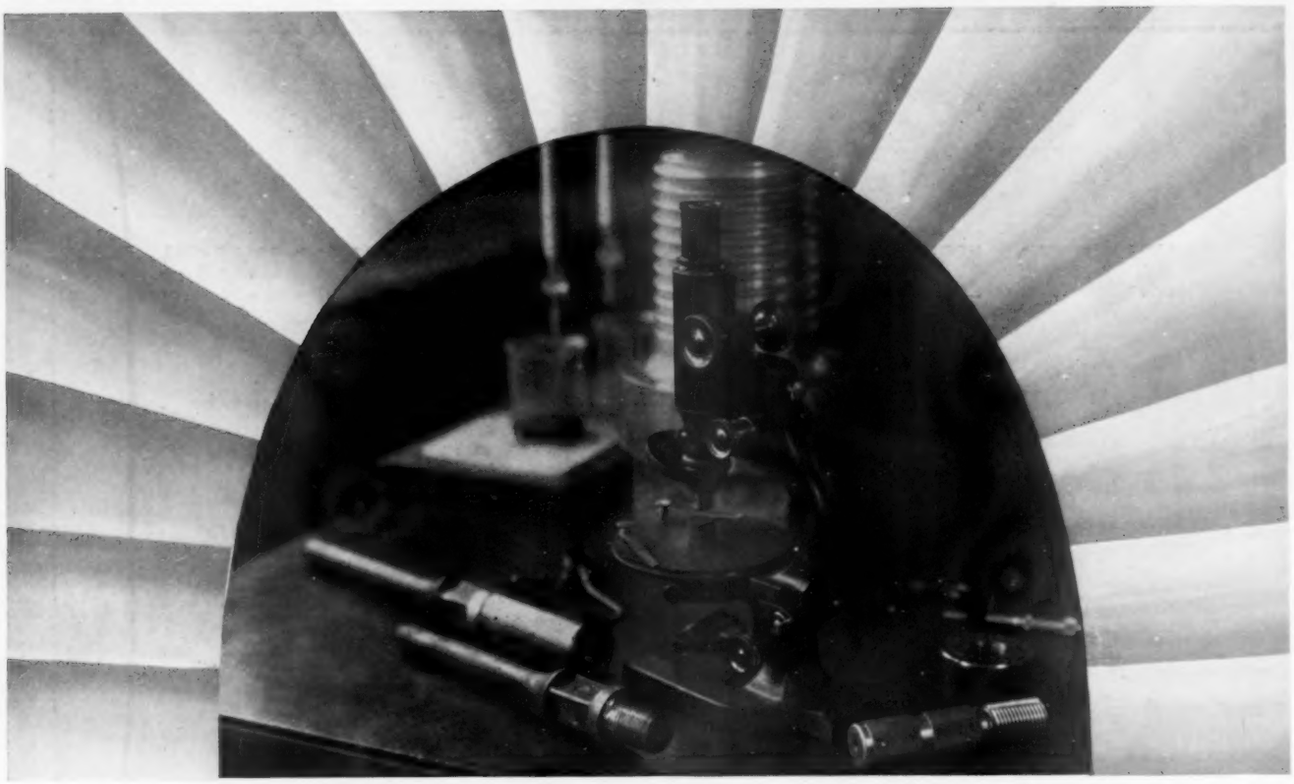
"There's a reason."

Among the major companies that have adopted electric drive for pipe line pumping are:

Magnolia Pipe Line Company
Shell Pipe Line Company
Atlantic Pipe Line Company
Sinclair Pipe Line Company
Illinois Pipe Line Company
Southern Pipe Line Company
Oklahoma Pipe Line Company
Gulf Pipe Line Company
Landreth Production Corporation

TEXAS ELECTRIC SERVICE CO.
TEXAS POWER & LIGHT CO.

General Offices
Interurban Building
DALLAS, TEXAS



This is the day *of the* Specialist!

During the past 36 years of Axelson history, many opportunities have been presented to engage in the manufacture of different types of equipment for the Oil Industry. As experience matured and development of the Industry progressed, the policy of the Axelson Organization was to restrict its manufacturing efforts to a few articles rather than to generalize.

And fortunately this policy has proven its stability.

Resultantly, the concentration of our efforts in the building of Pumps and Sucker Rods has focused all our thoughts and has developed our factory systematization to a degree that permits much higher quality in the finished products.

One thing well done is worth a host of trivials—

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

AXELSON MACHINE COMPANY

P. O. Box 337, Los Angeles.

Tulsa, St. Louis, New York City.

Mid-Continent Distributors—Frick-Reid Supply Co.

Eastern Distributors—Frick & Lindsay Co.

AXELSON SUCKER RODS